

American Aviation

The Independent
Voice of
American Aeronautics

15c A Copy

Vol. 3, No. 16

Published Twice a Month

January 15, 1940

\$3.00 a Year

Fortnightly Review

The Flying Forties

THE imperturbable and self-possessed president of Braniff Airways is known in the oil country of the southwest for his erudition, especially in aviation matters. Out of calm and collected Tom Braniff have come more than one crystal-clear gem of satire or cryptic comment to brighten up contemporary aviation literature.

Mr. Braniff is now credited with a slogan for the new decade which may well go in o history as descriptive of the escalade of air transport progress. Mr. Braniff has stated that the decade of 1940-50 will be known as "The Flying Forties".

We have had "Gay Nineties" and "Prosperous Twenties" and a host of other periods which the lighter historians delight in naming, and it seems to us highly logical that the decade which has just blossomed forth should be known for the aviation progress which it is bound to bring. If the past decade is any indication at all, the public will truly be flying high in the forties. It will be the period in history when the human being in vast numbers takes to the air, not only in public carriers but in their own airplanes.

How far advanced will be aviation when 1950 rolls around? If the number of scheduled airline passengers increased from 173,000 in 1929 to over 1,600,000 in 1939, who can say that the airlines by the end of 1949 will not be carrying the bulk of first class travelers of the nation? And if the number of certificated pilots increased from a few thousand to 26,000 in the past decade, who can say that by 1949 the number of pilots will not number in the hundreds of thousands? Predictions usually are no better than guesses based upon past experience, (Turn to page 14)

Congress Gets 1941 Budget; National Defense Stressed

ROGERS OBSERVES 25th ANNIVERSARY

Vice-President and Washington Representative of Douglas Company
Began as Draftsman in 1915

John M. Rogers, vice-president of Douglas Aircraft Co. Inc., and Washington representative for that organization, this year observes his 25th anniversary in the business of aviation, having started as a draftsman with the Curtiss company in Buffalo, N. Y., in 1915.

At the age of 19, while attending Tonawanda, N. Y., High School, Rogers for the first time witnessed an airplane in flight. In 1915 he was graduated from Cornell University with the degree of mechanical engineer, joining the Curtiss company that same year. From the job of draftsman he was transferred to the research department of the Curtiss organization where he remained for two years.

His next activity was that of inspecting, for the U. S. Navy, the Navy Jennies and N9's at the Curtiss plant, later being transferred to Washington, (Turn to page 4, col. 4)

25 Years



(Harris & Ewing photo.)
John M. Rogers

Vice-president and Washington representative of Douglas Aircraft Co. Inc., Santa Monica, Cal., this year observes his 25th anniversary in aviation.

Douglas Building 39 DC-4's for '41 Delivery to 4 U. S. Lines, 1 Foreign

Construction Started on 40 of Revised Model; AA, EAL, Pan Am.,
United and KLM in Picture with Two of These
Asking Options on Six More

After announcing the "largest and most significant airplane order in the history of peace-time aviation," Douglas Aircraft Co. Inc. of Santa Monica, Cal., on Jan. 3 began construction of 40 production-model DC-4 transports valued at \$14,000,000.

Thirty-nine of the four-engine ships are covered by contracts in final negotiations with five lines, believed to be the following: American Airlines, Eastern Air Lines, Pan American Airways and United Air Lines in the U. S., and KLM, Royal Dutch Air Lines.

The Douglas official release did not stipulate the companies involved in the big order, and only three lines would comment, but it was learned

that the above four U. S. lines of the original "big five" which cooperated in the development of the \$3,000,000 prototype DC-4 will purchase fleets of the new version.

United on Nov. 7 announced the purchase of 10 of the new 40-passenger DC-4's at a cost of \$3,400,000. These are included in the total of 39 announced at this time, (AMERICAN AVIATION, Nov. 15).

American on Jan. 10 announced purchase of 15 40-passenger DC-4's at a cost of \$5,317,950. AA's ships will carry 22 passengers at night. This order is in addition to American's contract for 20 DC-3 Flagships ordered last fall which will be delivered at (Turn to page 8, col. 1)

Aviation Items Show General Increases in President's Requests

WITH emphasis still placed on national defense, President Roosevelt on Jan. 4 submitted to Congress an \$8,424,000,000 budget for fiscal year 1941, in which aviation items show a general increase, contrasted with cuts taken by other government departments.

During fiscal 1941, which begins July 1, 1940, the Air Corps will concentrate on building up its strength to 5,500 planes from contracts let under the supplemental \$300,000,000 appropriation in fiscal 1940, it is learned.

Consequently, the \$182,000,000 plus \$25,780,500 contract authorization provided for the Air Corps in the 1941 budget is in general for maintenance only. "On that basis provision is made for procurement of 496 planes for the Air Corps to replace a number that will become obsolete and also to replace those which it will be uneconomical to overhaul," the War Dept. has announced. Funds are provided for equipment for eight new National Guard observation squadrons, and the NG will also get 54 replacement planes in order to maintain its allotment of 409 under the 5,500-plane program. This latter program must be completed by July 1, 1941.

The 1941 Air Corps figures compare with \$184,464,936 plus \$76,205,988 contract authorization and \$300,000,000 supplemental appropriation in fiscal 1940. Major parts of the 1941 funds are as follows: for procurement of new airplanes, equipment, parts and accessories, \$76,205,988, and contractual obligation of \$25,780,500. Of these two items, not less than \$40,604,594 shall be applied to the procurement of new planes, their equipment and accessories, of which not less than \$37,164,594 shall be for combat planes, their equipment and accessories. As stated above, a large part of these funds will be used for maintenance. A total of \$3,919,718 is to be made available immediately.

Regular appropriation for the Navy's Bureau of Aeronautics for 1941 is estimated to total \$111,117,500, of which \$67,798,000 shall be (Turn to page 12, col. 1)

12 SEPARATE PESCO PRODUCTS

on each of Braniff's 4 new DC3's



PESCO congratulates the world's airlines on their 1939 achievements

The year just ended was the most successful year in the history of air transportation. More passengers, more mail, and more express were carried more miles than ever before. Here are a few of the Pesco Products that helped the airlines establish new standards of speed, safety and reliability.



Pesco fuel pumps feature an adjustable diaphragm type relief valve whereby discharge pressure regulation is balanced to atmospheric conditions.



Pesco vacuum pumps maintain constant suction for flight instruments and automatic pilot and supply air under pressure for actuating De-icers.



Pesco adjustable suction relief valves maintain a desired suction at the flight instruments through varying pump speeds and flight conditions.



Pesco oil separators remove lubricating oil from the air discharged from the vacuum pump and return it to the engine crankcase.



Pesco hydraulic pumps with adjustable relief valve provide a desired hydraulic pressure up to 1000 pounds per square inch for landing gear and flap cylinders.



Pesco electric-motor-driven hydraulic pumps have been specified as accessories for feathering Hamilton Standard hydromatic propellers.

● When a modern airline buys new equipment, every effort is made to achieve the utmost in safety, efficiency, and dependability... Like all other major airlines, Braniff has experienced the superior performance of Pesco Products... That's why PESCO fuel, vacuum and hydraulic pumps and accessories have been installed on the 4 new Douglas DC3's just added to Braniff's growing fleet of Super B-Liners.

PUMP ENGINEERING SERVICE CORPORATION

DIVISION BORG-WARNER CORPORATION

12910 TAFT AVENUE

CLEVELAND, OHIO, U. S. A.



Aero Chamber Develops Export Directory for U.S., Foreign Officials

The export department of the Aeronautical Chamber of Commerce recently conceived the idea of a loose-leaf service, known as the Aeronautical Export Directory, a ready-reference volume in which are illustrated and briefly described aircraft, commercial and military aircraft engines, as well as accessories, instruments, materials, parts, radio, airport and airways and service equipment.

The directory, of which several hundred copies have been distributed to a selected list of U. S. and foreign government officials, contains some 200 indexed pages covering the aeronautical products of the majority of the chamber's manufacturing members. It will be kept up to date by the issuance from time to time of revised or supplemental pages.

In introducing the directory, a chamber statement said: "One of the principal problems confronting the chamber and U. S. government representatives abroad, who are frequently called on to discuss American aeronautical products currently available or released for export, has been the rapidity with which the industry's line-up of products has been advancing and broadening." The directory, it was explained, has been developed to meet this export merchandising need.

Air Corps to Exhibit Equipment Jan. 19-20

A demonstration designed for the "education and instruction" of members of Congress and government officers will be given by the Army Air Corps on Jan. 19 at Bolling Field, D. C., when Army airplanes and accessories will be exhibited. Types of aircraft now in service, together with armament, communications, photographic and other equipment, will be displayed to show the development and progress of aviation.

On Jan. 20 the general public will be admitted to the exhibit. No flying is planned.

The exhibit will be entirely indoors, in the two new hangars at Bolling.

Betty Gillies Heads National 99's in '40

Election of national officers of the Ninety-Nine Club has been announced as follows:

Betty H. Gillies, Syosett, N. Y., president; Harriet Isaacson, Oakland, Cal., vice president; Elizabeth Phillips, Fredericksburg, Va., secretary; Barbara Southgate, Stamford, Conn., treasurer.

The 1940 nominating committee includes Louise Thaden, chairman; Margo Tanner, Marjorie Hook, Dorothy McBirney and Hortense Harris.

Officers of the club's south central section also were announced as follows:

Harriet Davidson Nye, Albuquerque, N. M., governor; Sally Duncan, Coffeyville, Kan., vice-governor; Jennie Tschoeper, Wichita, Kan., secretary-treasurer.

Officers of other sections were announced in AMERICAN AVIATION, Nov. 15.

Calendar

- Jan. 15-19—Society of Automotive Engineers. Annual Meeting. Book-Cadillac Hotel, Detroit.
- Jan. 19-20—Army Air Corps Equipment Exhibit at Bolling Field, Anacostia, D. C.
- Jan. 24-26—8th Annual Meeting. Institute of the Aeronautical Sciences, Columbia University, New York.
- Jan. 25—Aeronautical Chamber of Commerce, Annual Meeting, New York.
- Jan. 26—Institute of the Aeronautical Science, Honors Night, New York.
- Feb. 5-7—Air Transport Association's Engineering and Maintenance Conference, Muehlebach Hotel, Kansas City.
- Feb. 8—Air Transport Association's Purchasing Committee Meeting, Muehlebach Hotel, Kansas City.
- Feb. 10-11—Venice, Fla., Aviation Club's Annual Air Meet, Fred Albee Airport.
- Feb. 17-25—Sportsman Pilots' Air Show, International Amphitheater, Chicago.
- Feb. 24-Mar. 9—Aviation Show Sponsored by May Co., Cleveland.
- Mar. 16-21—Sportsman Pilots Association Cruise to New Orleans.
- Apr. 26-28—Air Congress of America, Southwest Division, Tulsa.
- Oct. 7-11—National Safety Congress and Exposition, Stevens Hotel, Chicago.

Fickel Succeeds Kilner As Assistant AC Chief; Lackland to GHQ Post

Brig. Gen. and Wing Commander Jacob E. Fickel, Air Corps, has been appointed by Secretary of War Woodring to assistant chief of the Air Corps with the rank of brigadier general to fill the vacancy occasioned by the retirement of Brig. Gen. Walter G. Kilner. Appointment was made for a period of four years.

Concurrently, Secretary Woodring appointed Col. Frank E. Lackland, Air Corps, to be wing commander, General Headquarters Air Force, with temporary rank of brigadier general, succeeding Brig. Gen. Fickel.

Air Corps Asks Bids on Rotary-Wing Craft

Invitation of bids for the procurement by the Army Air Corps of experimental rotary-wing aircraft has been approved by Assistant Secretary of War Louis Johnson. Announcement of design competition covering rotorcraft states that the planes to be purchased will be used primarily to determine possible military applications, but notes "this experimentation should further development for additional civil purposes."

The specification of the design followed a number of conferences held between representatives of NACA, the CAA, the Navy's Bureau of Aeronautics and the War Dept. as provided by Congress in the act approved June 30, 1938. Opening date for bids is Apr. 22.

Hinckley Predicts

Robert H. Hinckley, CAA chairman, speaking before the Washington Junior Board of Commerce, Jan. 4, predicted that domestic carriers in 1940 will transport 2,500,000 passengers, traveling 1,000,000,000 miles on planes that will fly 100,000,000 miles. During 1939 the airlines flew 82,000,000 passenger miles per passenger fatality and carried some 1,900,000 passengers, or 41% more than in 1938, he said. Miles flown last year were 17% above those of the previous year, while passenger miles totaled 738,000,000 for a 32% increase.

V. P. and Engineer



Hall L. Hibbard
Vice-president and chief engineer of Lockheed Aircraft Corp., Burbank, Cal.

E. T. Allen, Boeing Research Director, Wins Chanute Award

Edmund Turney Allen, director of aerodynamics and flight research for Boeing Aircraft Co., Seattle, has been chosen first recipient of the Chanute Award, established this year by the Institute of the Aeronautical Sciences to be given annually to the pilot who has made an outstanding contribution to the aeronautical sciences. Allen was selected for his "outstanding contributions to methods and procedure in flight research in connection with airplane design and operation."

Members of the award committee are Maj. Gen. H. H. Arnold, chief of the Army Air Corps; Rear Adm. J. H. Towers, chief of the Navy's Bureau of Aeronautics; Dr. Lyman J. Briggs, director of the National Bureau of Standards; Robert H. Hinckley, CAA chairman; Dr. George W. Lewis, NACA director of research, and Maj. Lester D. Gardner, executive vice-president of the Institute of the Aeronautical Sciences.

OREGON HEAD CHOSEN

Capt. Leo G. Devaney Succeeds Allan D. Greenwood As State Director of Aeronautics

Capt. Leo G. Devaney, former military flying instructor and transport pilot, is the new Oregon state director of aeronautics, succeeding Allan D. Greenwood, Jan. 1.

Capt. Devaney was one of the first members of the Oregon board of aeronautics, receiving that appointment in 1920. He is former army instructor and aeronautical engineering officer at Kelly Field, Tex., and includes among his commercial airline experience the job of operations manager for United Air Lines at Medford, Ore., from 1934-1937.

3 Join AC of C

U. S. Aviation Underwriters, Inc., New York, which resigned from the Aeronautical Chamber of Commerce about a year ago, has rejoined the chamber, it was announced recently. Additional new members of the AC of C are Ryan Aeronautical Co., San Diego, Cal., and Acrotorque Co., Cleveland, O.

Favorable Weather Aids Florida Events; 600 in Cavalcade

Attended by many lightplane flyers, members of various governmental groups and other interested persons, the 12th Annual All-American Air Maneuvers and affiliated attractions at Miami, Fla., around the period of Jan. 5-7 got underway to a good start, aided by favorable weather, with the maneuvers attracting a crowd of over 7,000 each day.

An unusually good list of featured attractions was announced by Don Stremmel of National Airlines.

There were 600 craft in the Lightplane Cavalcade with nothing but a few minor mishaps reported on the mass flight to Florida. A record of 585 of the planes were counted at Orlando at one time for entertainment by Orlando Municipal Airport and the city of Orlando. The cavalcade assembled there for a tour of Florida and for the 7th Annual Orlando Air Party and Florida Flying Alligator Club Frolic. About two-thirds of the lightplanes were flown on to Miami for the maneuvers.

Free gasoline and oil was provided the lightplane pilots by Gulf Oil Corp.

Winner of the Bernarr Macfadden On-to-Miami Trophy Race was Homer C. Rankin of Wichita, Kan., who entered a twin-Beechcraft for Beech Aircraft Corp., Wichita. He flew to Miami from St. Louis in 4 hrs. 37½ min. at an average speed of 234.097 mph. to win the \$3,000 first prize.

Seven of the nine planes entered in the Macfadden race were Beechcrafts.

Second place for \$2,000 was won by Russell Holderman of Rochester, N. Y., flying a Lockheed 12 for Gannett newspapers. William M. Cason of San Antonio, Tex., in a Beechcraft entered by Al Buchanan Drilling Co., won third-place money of \$1,500.

Other money-winning pilots and planes were as follows: Anthony J. Ming, Red Bank, N. J., Beechcraft, \$1,000; Bruce Gimbel, New York City, Beechcraft, \$100; Donald L. Provost, Teaneck, N. J., Beechcraft, \$100; George Pomeroy, Brooklyn, N. Y., Beechcraft, \$100; Ariene Davis, Lakewood, O., Spartan, \$100, and R. G. Lloyd, Robertson, Mo., Beechcraft, \$100.

Edward Walz of Camden, N. J., was winner of the C-licensed race for Luscombes of 200 cu. in. displacement or under. Winner in the Aeronca division was Ellis Eno of Ft. Dodge, Ia.

Virginia Snodgrass of Waterloo, Ia., won the Alcazar Trophy in the women's race for ships of 200 cu. in. displacement. Her plane, entered by Jack Snodgrass, was a Taylorcraft.

In the C-licensed race, 200 cu. in. displacement or under, open or closed, qualifying for the Firestone Trophy, first place was taken by Jack Snodgrass of Waterloo, Ia., in a Taylorcraft. He went on to win the Firestone Trophy in the Taylorcraft.

The Dominican Trophy was won by Kenneth Olson of Racine, Ill., who flew a Monocoupe, and the Green Trophy Race was won by Art Carnahan of Racine, Wis., in a Monocoupe, entered by Kenneth Olson.

The Glenn H. Curtiss-Race for 550 cu. in. displacement or over was won in a Lockheed by Russell Holderman for Gannett newspapers. Prize money was \$500.

Industry people attending the maneuvers were Ronald Gall of Wright Aeronautical Corp. and Norman Clements of United Aircraft Corp.

The House Military Affairs Committee attended the activities. Sen. D. Worth Clark of Idaho and Congressmen Jack Nichols and Jennings Randolph and CAA Member Oswald Ryan flew to the maneuvers from Washington in the CAA's Lockheed 12 transport.

Johnston Takes New NACA Position After Resigning Editorship

S. Paul Johnston has resigned as editor of *Aviation*, published by McGraw-Hill Publishing Co., and on Jan. 10 was sworn in as coordinator of research for NACA. This office has been established by the committee to provide more effective coordination of applied aeronautical research in industry and governmental services, and to utilize more effectively research facilities in scientific and educational institutions, the committee announced.

Coordination of research entails close liaison with all organizations that operate research facilities and Johnston will have assistants in the field to keep in close touch with progress and needs. He will be a member of all standing technical subcommittees.

Johnston was born in 1899, was graduated from MIT, was an Army flying cadet in 1918, was associated several years with Aluminum Company of America and in 1930 worked with Dr. Edward Warner, who was then editor of *Aviation*. He joined *Aviation* in 1931.

Form New Air Corps Units

Formation of several new Air Corps units and the return to activity of others on the inactive list, effective Feb. 1, have been announced by Secretary of War Harry H. Woodring. The new groups will absorb much of the increased Air Corps personnel and will be equipped with new aircraft now being delivered to the War Dept. The new units include bombardment and pursuit groups for Puerto Rico, a pursuit group for the Panama Canal Zone, a bombardment group for Hawaii, a composite group for Alaska and a number of organizations for continental U. S.

1939 Reed Award to George J. Mead

The Sylvanus Albert Reed Award for 1939, conferred annually by the Institute of the Aeronautical Sciences in recognition of a notable contribution to aeronautical engineering, will be presented to George Jackson Mead, vice-chairman of the National Advisory Committee for Aeronautics "for the design and development of high output aircraft engines for military and commercial services."



Mead engines for military and commercial services.

The award will be made at the honors night and annual dinner of the institute in New York on Jan. 26.

Mead, who is one of the nine Americans who are honorary fellows of the I. Ae. S., in 1937 received the Taylor Medal awarded by the Royal Aeronautical Society of Great Britain.

Since 1916 he has been continuously engaged in the engineering development of aircraft engines, having been chief engineer of Wright Aeronautical Corp., engineering founder of Pratt & Whitney Aircraft Div. and subsequently vice-president and chief engineer of United Aircraft Corp.

Compiles Insurance Booklet

A 48-page booklet, "Life Insurance Underwriting Practices Covering Aviation Risks," compiled by Gerald A. Eubank, president of Monnett & Vickrey Inc., 1 Cedar St., New York, is being distributed to agents and brokers in New York and to home office underwriters. Copies are available at 25c each from Bankers Press, 238 Water St., New York.

Unified National Policy Praised in CAA's First Annual Report

Predicts 40,000 Pilots by End of 2nd Year; Urges Federal Aid for Airports; No New Legislation Recommended

Attributing the unprecedented advance in American civil aviation to the fact that "for the first time civil aviation in this country has had the benefit of a unified and comprehensive national policy, administered by a single Federal agency," the CAA on Jan. 8 submitted its first annual report to Congress.

The CAA predicts that by the end of its second year there will be 40,000 certificated civilian pilots in the U. S., and urges Congress to give "serious and early consideration" to the direct appropriation of federal funds for airport projects.

With but few exceptions, American air carriers are now operating in the black, the report states, adding that during August, 1939 (the report covers fiscal year 1939 plus five additional months) 45.9% more passenger traffic was handled, 49.7% more express, and 12.5% more mail than during the same month of 1938.

When the CAA took office it found the industry "in a state described by the House Committee in charge of the new legislation as 'chaotic.'" the report says. "Half of the private capital which had been invested in the industry had been irretrievably lost. The result of shaken faith on the part of the investing public in the financial stability of the airlines was preventing the flow of greatly needed funds into this industry. More than half of the domestic airlines carrying mail disclosed operating deficits for the year ending June 30, 1938." The improved economic condition can be attributed in large part "to the new Government policy laid down in the Civil Aeronautics Act."

For the first time all branches of the aeronautical industry have been enabled to lay their plans for the future and to adopt long-range programs based upon sound economic principles, the CAA states. "For the first time they have found it feasible to cooperate with each other and with the Federal government in the attainment of common objectives for advancing the industry on all fronts."

In predicting 40,000 pilots by the end of its second year, the CAA points out that there is a "new and vigorous demand" for planes, engines and accessories. "At the time the Civil Aeronautics Act became effective, there were 21,118 certificated civilian pilots in the United States," the report says. "Today their number has increased to 29,513. . . . During the summer of 1939, the production of civilian aircraft was at a level approximately 100% higher than that of the previous year."

The CAA calls attention to the fact that it has recommended to Congress the immediate allocation of \$100,000,000 of relief appropriations and a \$25,000,000 special appropriation for Federal participation in the development of a national system of airports. "The Authority did not, at the time it sent its recommendations to Congress, and does not now hold to the opinion that the Federal Government should assume the full burden of airport construction," the report states. "It feels that this burden should be reasonably shared by the municipal, or other local governments, and that the cost of airport maintenance and operation, save for certain air navigation facilities, should be wholly borne by such governments."

"The Authority does feel, however, that the direct appropriation of

Federal funds for airport projects deserves serious and early consideration. The rapid development of air transport activities upon the nation's leading air terminals and the growing concern of our military officials over the adequacy of our current airports for defense purposes indicate the desirability of creating some new air terminals and of improving or enlarging others at the earliest possible time."

Growth of passenger traffic is attributed by the CAA to safety of operations, which are almost four times better than any other year, and to the development of the federal airways. "For the first time American air carriers and the public are guarded against uneconomic, destructive competition and wasteful duplication of services by the statutory requirement that no person or company may engage in air transportation without first receiving a certificate of public convenience and necessity," it adds.

What the Authority terms "a significant fact" is the following point: "The Civil Aeronautics Act is broader in scope than any other Federal regulatory statute (particularly any other transport or public utility statute), covering, as it does, interstate, overseas, and international air transportation, and extending its jurisdiction not only over common carriers of the air but over all commercial air transportation, all private flying, and to a degree, over production, and over pilot and mechanic training agencies. Yet no provision of that statute and no order of the Authority issued under it has thus far been challenged in any court."

Applications for new routes both in the U. S. and to points overseas involve 30,653 route miles as compared with the 36,533 existing route miles, the report states. Eliminating duplications, the total new domestic route mileage for which authorization is sought is 19,126 miles, it adds.

No new legislation is recommended to Congress at this time, the CAA states. "Both the Civil Aeronautics Act of 1938 and the agencies created by it have been in existence such a short time that many phases of the preliminary period of organization, establishment of policies and precedents, and emergency action are not yet ended," the report explains. "When deemed necessary, the Authority will recommend such legislation as may appear to be needed."

The report, among other things, also discusses the work of the Air Safety Board, economic regulation, international problems, and the civilian pilot training program.

Rogers

(Continued from page 1)

D. C. Rogers then moved to Garden City, N. Y., where he was connected with the design of the NC ships.

In 1919 when Rogers was 28, he was engaged by Wright Aeronautical, and he remained with that company until it was reorganized, but returned again in 1927. In a sales capacity he was sent to the Pacific coast as Wright's western representative.

With the beginning of 1940, Rogers had served Douglas Aircraft for over eight years as Washington representative.

Spokane Squadron Wins Trophy



In memory of Lt. John H. Sherburne, member of a national guard observation squadron in Massachusetts who was killed in duty, the first Sherburne Trophy has been awarded to the 116th aviation squadron of the 41st division, Washington National Guard, Spokane, Wash., for tactical and technical efficiency in competition with every national guard air unit in the U. S. The award was established in 1939 by Lt. Sherburne's father, Brig. Gen. John H. Sherburne.

The Spokane unit, 23 officers of which are shown above, flew 7,151 hours during the year, more than twice the record of its nearest competitor in the 19 national guard units.

Commanded by Maj. H. R. Wallace, the squadron has 12 men on full-time duty at the hangars. Lt. E. C. French received the trophy for the squadron from Brig. Gen. Albert H. Blanding. (Photos by 116th Photo Section WNG.)



Export Secures Italian Landing Rights as Atlantic Hearing Ends

With a final flurry which saw American Export Airlines announce the procurement of unrestricted landing rights in Italy, and a restatement of position on the part of the Post Office Department, the Export hearing for trans-Atlantic routes to England, France and Italy concluded before CAA Examiner C. Edward Leasure on Jan. 10.

Marked by the strenuous opposition of Pan American Airways, the hearing opened Oct. 31 and except for a week's recess at Christmas has been in session since. In order to clarify the issues, oral argument will be held before Examiner Leasure on Jan. 22, and briefs are due Feb. 7.

In an executive session on the final day of the hearing, Export announced that it had been successful in securing landing rights in Italy. It had previously been stated that the company was negotiating directly with the Italian government for such rights, with the full knowledge of the U. S. State Department.

The Post Office, which in a letter by First Assistant Postmaster General W. W. Howes on Nov. 4, had taken a definite stand against establishment of new trans-Atlantic service insofar as mail alone is concerned, on Jan. 10 submitted another letter declaring additional service desirable, and indicating no preference for either airline. The letter, signed by J. M. Donaldson, acting First Assistant, explained that "the conditions which led the Post Office Department to advise the Authority that additional mail service was not needed on Nov. 4, do not now obtain. Further, that the mail volume between the U. S. and European countries carried by airplanes has increased to the extent that additional service is desirable."

"As to whether this additional service should be operated by Pan American, American Export Airlines, or any other American company, is not of concern to the Post Office Department. The Department's interest is from a mail standpoint only." In the Nov. 4 letter, the P. O. had stated that any additional service could be furnished by the existing carrier. Asked to take a definite stand on the proposed route to Rome, which Export contemplates operating on a temporary basis until cessation of hostilities in Europe, the P. O. on Jan. 5 said "it would appear that the question of the establishment of the route is one over which the CAA has jurisdiction under the law."

Testimony on behalf of Pan Am was given during the past two weeks by Juan Trippe, president; John

Woodbridge, treasurer; Col. J. Clawson Roop, comptroller; Col. J. Carroll Cone, manager of the Atlantic division, and A. C. Clark, meteorologist. Trippe opposed entry of another U. S. line into Atlantic service on the grounds that PAA expects strenuous competition from foreign companies, especially the English and French. "I certainly don't believe competition between American airlines on the Atlantic is desirable at the present time, if ever," he said. One U. S. company can operate additional service which may be required at much less cost than two, he maintained.

With reference to the six weekly trips PAA states it will operate to Lisbon with the six new Boeings now under construction, Col. Roop submitted yearly estimates showing the following: if two trips were operated, total revenue, excluding U. S. mail pay, would be \$1,317,164, against total expenses of \$2,557,025, resulting in a loss before interest or amortization of development and without U. S. mail pay of \$2,042,501. Revenues on the same basis for three trips would be \$1,906,722 against expenses of \$4,448,887, or loss of \$2,542,165 before interest, etc. For four trips, revenues, \$2,475,710, expenses, \$5,504,024, or loss of \$3,028,314. Five trips, revenues, \$3,039,149, expenses, \$6,464,727, making loss of \$3,425,578. Six trips revenues, \$3,612,997, expenses, \$7,212,786, or loss of \$3,599,789.

Daily U. S. air mail service to Europe should be established at the earliest practical time in order to "consolidate the American position," according to testimony given by Charles P. Graddick, Post Office superintendent of air mail. Daily service is needed to withstand foreign competition, Graddick said.

Export took the position throughout the hearing, which is generally considered to be one of the most important yet conducted by the CAA, that PAA's claim that it can offer additional service at less cost than Export, if true, is only possible because of mail payments received from the U. S. government on its other routes.

Sale of Charts Increases

Distribution of aeronautical charts by the U. S. Coast and Geodetic Survey during the fiscal year July 1, 1938, to June 30, 1939, showed an increase of 22½% over the previous year, it was revealed in the annual report of the Secretary of Commerce, Harry L. Hopkins, released on Dec. 30.

Domestic, Foreign Air Mail Results

Fiscal 1930-1939, Domestic

Fiscal Year	Payments to Carriers	Postage Revenue	Difference
1930	\$14,618,231.50	\$5,272,616.45	\$9,345,615.05 loss
1931	16,943,605.56	6,210,344.86	10,733,260.70 loss
1932	19,938,122.61	6,016,280.02	13,921,842.59 loss
1933	19,400,264.81	6,116,441.57	13,283,823.24 loss
1934	12,129,959.64*	5,737,536.00	6,392,423.64 loss
1935	8,814,295.61	6,589,534.44	2,224,761.17 loss
1936	12,104,797.31	9,702,676.46	2,402,120.85 loss
1937	13,088,357.90	12,439,579.24	648,778.66 loss
1938	14,666,153.82	15,301,210.50	635,056.68 profit
1939	16,625,473.90*	16,326,358.27	299,115.63 loss

*Final adjustment pending.

Fiscal 1935-1939, Foreign

Fiscal Year	Payments to Carriers	Postage Revenue	Difference
1935	7,146,917.70	1,602,890.77	5,544,026.93 loss
1936	6,993,470.42	1,950,010.10	5,043,460.32 loss
1937	7,121,695.44	2,148,170.82	4,973,524.62 loss
1938	9,063,345.73	3,757,499.21	5,305,846.52 loss
1939	9,239,044.89	3,925,512.75	5,313,532.14 loss

P. O. Loses \$299,116 on Domestic Air Mail, \$5,313,532 on Foreign in 1939

Fiscal Year Domestic Loss to Increase \$74,312 Through Retroactive Payments; Mail Believed Leveling Off at 6c Postage Rate

A loss of \$299,115.63 from the domestic air mail service was sustained by the Post Office Department during the fiscal year 1939, ended June 30, 1939, while in the foreign field the Department paid out \$5,313,532.14 more than it took in, according to figures made available to AMERICAN AVIATION following release of the Postmaster General's annual report on Dec. 31.

Payments to domestic carriers, pending final adjustment, totaled \$16,625,473.90, against postage revenue of \$16,326,358.27, to make the loss of \$299,115.63. This compares with a \$635,056.68 profit during fiscal 1938, the only profit ever shown by the P. O. from air mail.

Postage revenue from foreign carriers totaled \$3,925,512.75, against payments of \$9,239,044.89. This \$5,313,532.14 loss compares with a loss of \$5,305,846.52 in fiscal 1938.

At the time the Postmaster General's report was issued, the P. O. was not able to show it, but the year's loss will be increased to at least \$373,427.63 through payment of \$74,312.00 in retroactive rates to various carriers. Also, any increases granted by the CAA and made retroactive to fiscal 1939 will come out of the funds and increase the loss.

A total of 15,818,617,372 pound-miles of service was performed by the domestic carriers during fiscal 1939, as compared with 14,137,360,791 in 1938 and 12,732,530,874 in 1937. The 1939 figure represents an increase of

11.89% over 1938 and 24.24% over any other previous year.

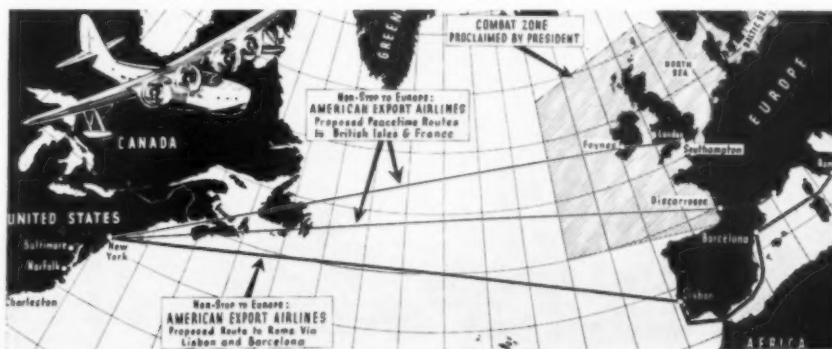
"Both the domestic and foreign air mail systems were improved and extended during the fiscal year 1939," the PMG's report stated. "There were 52,193,772 miles flown by planes on domestic air mail routes on a mileage pay basis, and 5,357,483 miles on U. S. foreign air mail routes—a total of 57,551,255 miles for the entire service. This exceeded by 12.49% the miles flown with pay during the fiscal year 1938 and by 29.61% the record of any previous year. The route mileage of the domestic system at the end of the fiscal year totaled 37,049 miles and that of the foreign system 31,478.9 miles—a total of 68,527.9 miles. . . . The U. S. foreign system now directly serves 93 cities in the following areas: Alaska, Canada, Newfoundland, Europe, Cuba, Mexico, Central and South America, Hawaii, Guam, the Philippine Islands and Asia."

"The air mails dispatched during the year on the foreign air mail routes to Mexico, Central and South America, and the West Indies, increased 20.5%, and the mails received therefrom increased 18.4% over the weights carried during the previous year. With respect to the trans-Pacific route, there was carried outbound from San Francisco to Honolulu an average of 602 lbs. per flight, and from Honolulu to San Francisco an average of 533 lbs. per flight, an increase of 5.6% over the previous year. West of Honolulu there was dispatched an average of 402 lbs. per flight and received 276 lbs. per flight, an increase of 27% over the previous year. On the route between New York and Bermuda there was carried by the U. S. service 2,641 lbs. outbound on 90 flights and 2,153 lbs. inbound on 90 flights. By the British service there was dispatched 639 lbs. on 52 flights, and received 934 lbs. on 51 flights."

This year's domestic loss is attributed by some high officials to two factors: (1) air mail is leveling off at the 6c postage rate, and (2) the Department did not do as much advertising in 1939 as in 1938. Also, it is pointed out, National Air Mail Week in 1938 brought in substantial revenue—almost the amount of the year's profit.

American Export's Proposed Non-Stop Routes

Map shows routes which American Export Airlines proposes to operate as the first non-stop commercial flying service across the Atlantic. Hearings on the company's application for the routes recently ended in Washington before the CAA.



DC-4's

(Continued from page 1)

the rate of two each week starting about Feb. 1.

Only the name of TWA is missing from the list of the "big five." TWA on Oct. 16 revealed that it would take delivery between February and April of this year on five Boeing 307 Stratoliners, a four-engine, 33-passenger ship (AMERICAN AVIATION Nov. 1).

Eastern earlier was reported to be negotiating for eight of the big Douglasses, and KLM, some months ago, was considering the purchase of six of the earlier model DC-4. Recently, it was reported, KLM might take but three in an original order. Pan American, it is believed, may buy the remaining three ships.

The 50,000-lb. planes will be delivered to their customers early in 1941, it was revealed. First of the new planes is scheduled to fly in December.

When the contracts are signed in the near future, the Santa Monica firm will hold a backlog of orders totaling more than \$90,000,000. In addition, it was learned, two of the airlines buying DC-4's have stipulated that they want options on six more of the four-engine machines.

Divining

Following announcement that Douglas Aircraft Co. Inc. is building 39 DC-4's for five airlines, guessers in the business predicted that the order would be divided approximately as follows:

United	10
Pan American	3
Eastern	8
American	15
KLM	3

Total

Only authentic figures here are those for American Airlines, Eastern Airlines and United Air Lines. Others are based on preliminary negotiations between airlines and Douglas.

New ships will have super-charged cabins providing comfortable low-level atmosphere inside the cabin while the ship is being operated in the higher altitudes.

According to individual airline requirements, arrangements of the production DC-4's will vary from 40 to 42 passengers as day airliners and accommodate 20 to 22 as sleepers, in addition to a crew of five or six.

New transports will have a top speed of 262 mph. and will cruise at 229 at 15,000 ft. They will have room for 4500 lbs. of cargo and 1700 gallons of gasoline.

Engine installations will provide for Pratt & Whitney and Wright radials. American's DC-4's will be powered by engines developing a total of 4800 hp.

Rapid mass production of this order is made possible by the time and money spent in developing the prototype plane in the last four years, Douglas officials explained.

"Never before has an initial order of this size or scope been placed with one manufacturer," the announcement said. "Coming at the time when world attention is focused on military flying, the Douglas project assumes special significance and is a guarantee that the interests of commercial aviation in America will not be neglected in the war-time boom."

Pan American Plans 50-Passenger Plane Cruising at 300 MPH; Delivery in 3 Years

A plane which will carry a minimum of 50 passengers and 5,000 lbs. of mail and express, have a range of 5,000 miles and cruise at 300 mph. may be put in service by Pan American Airways in three years, according to testimony given by Juan Trippe, PAA president, at a CAA hearing in Washington Jan. 3.

A design competition is to be held, Mr. Trippe stated, and Pan Am expects to have engineering data, wind tunnel tests, etc., in its hands by June of this year, when actual construction is scheduled to begin. The Pan Am board of directors has authorized appropriation of \$50,000 to cover payments to be made to manufacturers submitting "the most satisfactory detailed designs," he said.

Names of manufacturers whose designs had been selected or the number

of aircraft to be ordered was not revealed by the PAA president. He did state, however, that preliminary designs were submitted by Boeing Aircraft Co., Consolidated Aircraft, Sikorsky Airplane Division of United Aircraft, and Douglas Aircraft.

The planes are to have supercharged cabins, making high altitude non-stop over-night service to Europe possible, Mr. Trippe said. Unofficially it is learned that the ships' gross weight is expected to be about 125,000 lbs. Four engines of 2,000 to 3,000 hp. will be provided, and the plane will fly at 15,000 ft. where it would be above adverse Atlantic weather 90% of the time. Engines are expected to be accessible in flight, all fuel will be carried outside, the hull where passengers are carried, and a double bottom will be provided for emergency landings.

Blanton Resigns Post With ALCEA Division

Robert E. Blanton, secretary-treasurer of Air Line Communication Employees Association, recently submitted his resignation as chairman of the AMA division of that organization.

Blanton is one of the few airline radio operators who assisted in the organizational work as president of the former Airline Radio Operators Association which led to the present national association.

He felt that his duties as national secretary were becoming so great that it would be impossible to continue in the dual role of AMA chairman and national secretary. His successor will be elected soon.



Blanton

New Control Tower Organization Seeks Standard Procedure

Organized effort toward standardization of airport control tower procedure throughout the country was made with formation recently of the Control Tower Operators Association. The association, designed to give effective representation to control tower operators, aims by cooperation with CAA officials and other groups to eliminate some of the confusion arising from present lack of uniformity in aerial trafficking practices, it was indicated at the organizational meeting in Chicago.

Acting officers of the organization are John M. Becker, chief of the Chicago Municipal Airport control tower, chairman; Victor Kayne, head of control tower, Washington, D. C., secretary, and M. E. Tait, in charge of the Burbank, Cal., control tower, treasurer. A spring meeting of the group is planned for development of policy and permanent organization.

Capital Fleet of DC-3's Christened



The first six of Pennsylvania-Central Airlines' new fleet of 10 Douglas DC-3's went into service on Jan. 2, the others following in the spring, and on Jan. 4, Mrs. Franklin D. Roosevelt christened the Capital Ship Washington at Washington Airport over a coast-to-coast radio network. Other ships of the Capital Fleet later were christened for Detroit, Cleveland, Akron and Pittsburgh, and by Jan. 8 all Detroit-Washington air service on the line was by Capital Fleet Douglas transports.

Top photo shows one of PCA's new DC-3's flying over the plant of Douglas Aircraft Co. Inc., Santa Monica, Cal., before it was flown east for service on scheduled routes.

Lower photo shows Donald Douglas, president of the Douglas company, at left, releasing the sixth plane to C. Bedell Monro, PCA president. Monro announced recently that on Feb. 1 the Capital Fleet would be extended from Washington to Norfolk, this being the date scheduled for the dedication of the improved municipal airport at Norfolk.

After Jan. 2 the Boeing transports previously operated on PCA's Detroit-Washington route were being flown on other divisions of the company's system.



PAA TO INCREASE ATLANTIC SERVICE

Asks CAA to Set Mail Rates for 6 Weekly Trips

Inauguration of a third weekly trans-Atlantic schedule to Lisbon in March and establishment of six trips a week when the six Boeing 314A flying boats now on order are delivered sometime in 1941 is contemplated by Pan American Airways, and the company has asked the CAA to fix mail rates for all trips.

A temporary rate of \$11,300 per trip for 1,600 lbs. of mail, plus \$4.00 per lb. for excess, or flat payment of \$10.00 per lb. for all mail, has been requested for the third schedule. Permanent rates sought are as follows: for third and fourth weekly trips, \$14,100 per trip for 1,600 lbs., plus \$4.00 for excess, or flat payment of \$10 per lb.; for fifth and sixth schedules, \$12,800 per trip, plus \$4.00 per lb. for excess, or \$10.00 per lb. The \$11,300 per trip would apply to the schedule commencing in March and would prevail until "new and improved aircraft" (314A's) are available.

It has been indicated to the applicant that the Postmaster General will designate the additional services which the applicant intends to operate for the transportation of U. S. mail, subject to the availability of appropriations to pay the fair and reasonable rate of compensation to be fixed by the CAA, the application stated. All rates are predicated on the continuance of emergency conditions in Europe, the Neutrality Act and combat areas, "and are not intended to represent what might be fair and reasonable rates under conditions, which are unpredictable at this time, which may obtain upon the termination of any or all of the three conditions upon which applicant's estimates have been based," it added.

Upon receipt of the new Clippers, PAA plans to operate during the summer from New York to Lisbon with a stop at Horta, furnishing sleeping accommodations for 32 passengers. In the winter when sea conditions at Horta are bad, passenger accommodations will be limited to 12 and the service will operate non-stop from Bermuda to Lisbon.

Pan Am claims that "for the first time in air mail history . . . the new schedules would operate without subsidy, since the rate requested . . . is lower than the actual postage revenue now being returned to the U. S. Treasury by the trans-Atlantic service."

United Taking DC-3's

First of a fleet of seven DC-3 Mainliners for 1940 service on United Air Lines was delivered late in December, it was announced by J. A. Herlihy, United's vice-president-operations. Three more of the new \$870,000 fleet were to be delivered this month and the last three in April. The new Douglas ships will have 14-cylinder twin row Pratt & Whitney Wasp engines, rated as the most powerful powerplants on commercial landplanes in this country.

Vale from TWA to Sweeney

J. W. Vale, Jr., who for the last eight years has served TWA in various capacities, has been engaged by Sweeney Aviation School, which recently moved to Fairfax Airport, Kansas City, Kan.

Super-B-Liners in Service

Four new Douglas DC-3 transports went into service on Jan. 1 on the system of Braniff Airways under the name of "Super-B-Liners." Douglas Aircraft Co. Inc. upon completion of the fleet described the ships as "the finest air transports the world affords."

Top photo shows the crowd which tried to swarm one of the new Super-B-Liners when it landed at Oklahoma City.

Lower photo shows a Braniff sales meeting in session aloft. Meeting was held recently above Dallas and was attended by Braniff district traffic managers from Chicago, Kansas City, Wichita, Oklahoma City, Dallas, Ft. Worth, Austin, San Antonio, Corpus Christi, Houston, Amarillo and Brownsville. Charles E.

Beard, vice-president of the line, is shown at the front of the cabin (right) with Capt. R. C. Shrader, chief pilot (center) and Bill Beattie, Beard's assistant.

AM. EXPORT BUYS
3 VOUGHT BOATS

Model VS-44-A Craft Are Purchased From United Aircraft Division for \$1,845,000

Purchase by American Export Airlines of three model VS-44-A flying boats at a total purchase price of \$1,845,000 is provided for in contract signed Dec. 29 with the Vought-Sikorsky Aircraft Div. of United Aircraft Corp., it was revealed at Export's hearing for trans-Atlantic certificates to England, France and Italy. Unit cost, flyaway factory, is \$615,000.

With signing of the agreement, \$50,000 was paid United Aircraft for engineering expenses, liabilities incurred and for holding open production facilities. March 15, 1940, is set as expiration date for Export's option, but extension is expected pending CAA decision on the company's application. Upon exercise of the option, Export must pay \$688,000, which together with the \$50,000 will represent down payment.

An additional \$738,000 is to be payable in installments as work progresses, \$73,800 one month after down payment and for each 30-day period thereafter until the \$738,000 is paid. The remainder—\$369,000—is payable in three equal parts, one before delivery of each craft and within 10 days after notice that a ship has completed the manufacturer's tests.

Manufacturer's tests on the first flying boat are scheduled for completion within 11 months after option has been taken, and on the other two ships within 14 and 16 months after that date. John E. Slater, Export executive vice-president, in discussing the contract, suggested that work on the four-engine craft will not progress until the company is granted operating certificates.

KLM Moves NY Office

The office of KLM, Royal Dutch Air Lines, and the Netherlands Railways has been moved from 630 5th Ave. to Suite 410, Holland House, 10 Rockefeller Plaza, New York, N. Y.

PAA Seeks Route
Into New Orleans

Seeking what it terms "an additional gateway into the United States," Pan American Airways on Jan. 13 applied to the CAA for a mail-passenger-express operation between Guatemala City and New Orleans, either direct or with an intermediate stop at Merida, Mexico, or Belize, British Honduras.

The route would be an extension of the line now operated by the company from Cristobal, C. Z., to Brownsville, Tex. Boeing 307 landplanes may be used on the line. PAA officials have stated that they do not believe establishment of the new service would injure Eastern Air Lines, but would furnish that company new business.

PAA Baltimore-N. Y. Ruling

Because North Beach Airport has not been approved as a seaplane base and because it would be impracticable for Pan American Airways to transfer its maintenance and overhaul base from Baltimore to New York during the winter, the CAA has ordered that PAA be "exempted . . . from . . . section 401a) of the Civil Aeronautics Act with regard to . . . transportation . . . between Baltimore and New York . . . of persons and property (other than U. S. mail) destined to or originating in Bermuda, until June 1, 1940, or until such time prior thereto as adequate and satisfactory facilities for general maintenance and overhaul of said air carrier's aircraft used in such air transportation and the housing of personnel engaged therein, become available in or near New York City." Exemption became effective at 12:01 a. m., Jan. 1, 1940.

Chamber Meets Jan. 25

The annual meeting of the Aeronautical Chamber of Commerce of the United States will be held on Jan. 25 in New York City.

Enjoy 1940 Ease and Beauty In Braniff's
New 21-Passenger Douglas Super-B-Liners

WITHOUT a peer in today's sky, these 1940 Douglas DC-3's bring New roominess and comfort to discriminating travelers between the Great Lakes and the Gulf.

Under the expert guidance of Jeanne Braniff, color stylists and interior decorators have created a new sense of ease and relaxation in an atmosphere of friendliness and warmth. From gleaming New 1940 sky pantries, Braniff's full-course hot meals are graciously served by lovely college girl hostesses.

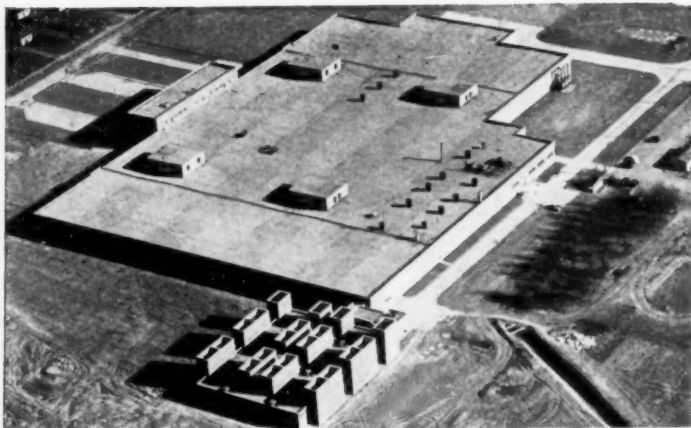
Engineers, too, have provided New 1940 efficiency and dependability. Constantly synchronized full-feathering propellers assure added quiet and security. Automatic Direction Finders provide 1940's newest aid to navigation.

The Southwest's Golden Prosperity Belt gave Braniff an increase of more than 60% last year. To other enterprises this amazingly prosperous area yielded equally astonishing results. If you have not yet discovered the pleasure and profit of flying, do so now. In 1940, join the 40,000 more who will enjoy the comfort, luxury and prosperity of the new decade by flying the Super-B-Liners.

M-11



Allison's Aircraft Engine Plant



Carefully guarded from visitors is the Allison Engineering Co. plant at Indianapolis, Ind., recently completed, now engaged in building in-line liquid-cooled engines for Army aircraft. The plant is notably lacking in windows. The entire plant is air-conditioned and lighted artificially with exception of a few offices. Large test cells are shown at lower center. Allison is a subsidiary of General Motors Corp.

P. O. Gives Retroactive Pay to 9 Lines Under I.C.C. Order; 5 Carriers Lose

Retroactive air mail payments to nine airlines are to be made by the Post Office Department under terms of an Interstate Commerce Commission order, while five carriers will be forced to return money to the government, it is learned.

History of the ICC order is as follows: under the Air Mail Act of 1934, mail compensation was figured on the "base mileage" principle, and the carriers, except those which have been put on a direct airport-to-airport basis by the CAA, are still paid in this manner. For each 10% increase in mileage over the base, payment was reduced 1c; for each 10% decrease, payment advanced 1c. The ICC then attached a provision stating that "the compensation payable under any rate so determined shall not exceed the minimum compensation payable under the next lower rate so determined."

TWA protested the provision and in prolonged hearings stated that in numerous instances the airlines received less pay for flying more miles when compensation changed from one bracket to another. Following the hearing, the ICC not only vacated the above provision, but changed the entire rate structure to the following: for every 1c increase in mileage, pay-

ment decreases 1 mill; for every 1% decrease, payment increases 1 mill. Purpose of the change was to flatten out the sliding scale.

As a result of the order, nine companies will receive the following approximate amounts in back pay: TWA, \$147,000; United, \$66,000; Northwest, \$6,800; Braniff, \$6,100; Inland, \$2,200; Continental, \$890; Chicago & Southern, \$23,000; Delta, \$2,500, and Mid-Continent, \$550.

The following companies will pay back to the P. O. these approximate amounts: American, \$18,000; Eastern, \$5,700; Western Air Express, \$16,000; Pennsylvania-Central, \$3,500, and Boston-Maine, \$4,300. The P. O. emphasizes that all amounts are approximate and subject to change. Payments are for the years 1935 through 1939, and it is probable that the P. O. will be forced to ask Congress for a deficiency appropriation of approximately \$200,000.

It was necessary for the P. O., following the June 12 order, to re-figure all air mail accounts back to 1935. For some time, the Department contemplated appealing the order on the grounds that the ICC not only had vacated the protested provision but had gone further and revised the entire rate structure.

Carriage of U. S. Air Mail to Alaska on Canadian Airlines Discontinued

Air mail letters from the U. S. to Alaska are no longer traveling over Canadian airlines from Vancouver to Whitehorse, service having been discontinued by the Post Office Department following receipt of complaints from Alaskan users, who are urging establishment of a route from Seattle to Vancouver.

Mails are now being transported from Seattle north by boat. The P. O. was using the Canadian air service from Vancouver north through Prince George and Ft. St. John to Whitehorse under a reciprocal agreement, but numerous delays are alleged.

The Ketchikan, Alaska, *Chronicle*, in an editorial, stated that an air mail letter left Olympia, Wash., on Oct. 17, reaching Juneau Nov. 3. Another letter, it said, left Olympia nine days later by "regular, slow transporta-

tion," and was in Juneau Oct. 31. "'Air mail' took 17 days, 'slow mail' took only five," the paper stated.

"The service which is now demonstrating its impracticability as far as the Territory is concerned doubtless will renew its old cry for first honors when definite air routes are established," the editorial said. "That is why Alaska should be asking and asking repeatedly for establishment of the proposed air mail route from Seattle to Juneau via Ketchikan. It is the only logical route."

New CAA Examiner

Frank McIntyre, formerly with the State Department, has joined the CAA as an examiner under C. Edward Leasure.

Engine Research Laboratory Urged in NACA's 25th Annual Report

Stimulation of Research in Educational, Scientific Institutions Also Recommended; New Principle in Wing Design May Prove of Great Importance

Urgent recommendation that it be authorized to construct an engine research laboratory "at the earliest possible date" in a location easily accessible to the aircraft-engine industry, is contained in the 25th annual report of the National Advisory Committee for Aeronautics, submitted to Congress Jan. 8.

Additional stimulation of aeronautical research in educational and scientific institutions was also recommended by the NACA. Both recommendations were made as a result of a study made by a special survey committee on aeronautical research facilities. The committee was composed of Col. Charles A. Lindbergh, chairman; Major General Henry H. Arnold, chief of the Air Corps; Rear Admiral John Towers, chief of the Navy's bureau of aeronautics, and CAA Chairman Robert Hinkley.

"As a result of its studies, this committee finds that there is a serious lack of engine research facilities in the United States, and that it is of the utmost importance for the development of aviation in general, and for our defense program in particular, to take immediate steps to remedy this deficiency," the committee said in reporting to the NACA. "This committee, therefore, urgently recommends that an engine research laboratory be constructed at the earliest possible date, in a location easily accessible to the aircraft-engine industry."

"In making this recommendation, the committee wishes to call attention to the fact that the reason for foreign leadership in certain important types of military aircraft is due in part to the superiority of foreign liquid-cooled engines. At the present time, the American facilities for research on aircraft power plants are inadequate and cannot be compared with the facilities for research in other major fields of aviation. This committee also recommends that an investigation be made of the engine research facilities which may be available at universities and other scientific organizations, with a view to coordinating these facilities and encouraging their most effective use. The committee is more than ever impressed with the desirability of using to the fullest possible extent the research facilities available in universities and other scientific organizations. The committee believes that the proper use and coordination of these facilities is one of the most important functions that can be carried on by the National Advisory Committee for Aeronautics."

Stating that it more or less anticipated the latter recommendation, the NACA report pointed out that in 1941 appropriations it has requested funds for research in educational and scientific institutions. "The committee cannot too strongly urge the importance of the proposed appropriation, for not only will it yield direct results in the form of new contributions to knowledge along a variety of lines for which the facilities and personnel of such institutions are well adapted, but it will also result in the training of research workers in aeronautics for the benefit alike of the governmental services and of the industry," the report said.

During the past year important progress was made in many ways in providing, through the Committee's researches at Langley Field, "new knowledge which should be the basis of extensive improvements in our aircraft," the NACA told Congress. "Discovery during the past year of a new principle in airplane-wing design may prove of great importance. The transition from laminar to turbulent air flow over a wing was so delayed as to reduce the profile drag, or basic air resistance, by approxi-

mately two-thirds. It is too early to appraise adequately the significance of this achievement. So far, its application is limited to small airplanes, but there are indications of its ultimate applicability to larger airplanes through continued research. It should increase the range and greatly improve the economy of airplane operation."

Discussing studies into the stability of planes, the report states that "many of the airplanes would be improved by increased directional stability. . . . As a class, the low-wing monoplanes tested have been undesirably weak in longitudinal stability. The midwing and the high-wing monoplanes have exhibited somewhat more satisfactory characteristics, particularly at low speeds, where an increasing degree of stability is desired as a stall warning. None of the airplanes, however, have been completely satisfactory in this respect." On the question of stalling, the report noted that "despite the contributing effects of other factors as shown by the flight tests, the wing characteristics continue to remain the chief factor in the stalling problem."

Graddick Terms Night Pick-Up a 'Success'

The experimental period authorized by the Post Office Dept. for conducting night flights—as a part of regular operations over the western end of the Pittsburgh-Philadelphia air mail pick-up routes operated by All American Aviation Inc. has been successfully concluded, it was announced late in December by Richard C. du Pont, president of the company.

Night service was established on Nov. 15 at Grove City, Butler and Natrona, Pa., and during the subsequent period of six weeks in which it operated, du Pont reported that all night pick-ups with one exception were made at these stations as scheduled.

The P. O. originally authorized night-flying experiments for a period of one month, but an extension was made to Dec. 22 to give postal officials an opportunity for further study of the operation.

Final experimental flight was witnessed from the air by Charles F. Graddick, superintendent of the P. O.'s air mail division.

Following the flight, Graddick expressed satisfaction with the results of the experiments. Their success, he said, had demonstrated the feasibility of adapting the pick-up system to night service, but the department felt that experiments should be discontinued until the CAA assumed control of the operation.

S. A. Travelers Favor Air

Buenos Aires, Argentina.—Preference for airways over road, rail or ocean transportation is shown by travelers leaving Argentina, according to an Immigration Dept. report. Skyway departures, in a recent 30-day period, totaled 1,114 as compared to 274 leaving by road and rail and 1,102 on ocean vessels. Arrivals by plane totaled 1,388, second only to the number brought in by waterway. Incoming train and road travelers were far behind with 297.



The Birdmen's Perch

Yesterday we threw away about a million bucks. A gent we know called up and said "Quick ... which would you rather have, a carload of quarters or a half carload of silver dollars?" Figure it out and shoot it at your pals. The average among the kind of people we know is 1 correct answer out of 10.

"Tattered Wing-Tips," Editor, The Birdmen's Perch, Room 3800, Gulf Building, Pittsburgh, Pa.



OUR FAVORITE MISS

(From Durand, Wis.)

By and large, our beloved puzzle fans are solid citizens. But very seldom are they as decorative as the young lady whose picture appears above.

She's Miss Elsie Irene Heike of Durand, Wis., who sent in a perfect answer to our Arab puzzle.

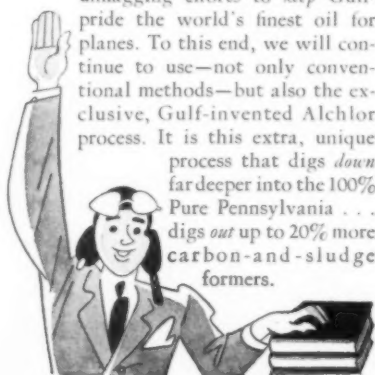
Possibly it comes from staring admiringly at Miss Heike's picture ... or perhaps the sudden realization that spring (as we write this) is only 124 days away—but where in blazes is that rhyming dictionary?

RESOLUTION FOR 1940

We've got a proposition for you.

You resolve to use nothing but Gulf-pride Oil in your plane during 1940 and we'll pledge ourselves to the same resolution we've made the past 10 years.

We hereby resolve to continue the same unflagging efforts to keep Gulf-pride the world's finest oil for planes. To this end, we will continue to use—not only conventional methods—but also the exclusive, Gulf-invented Alchlor process. It is this extra, unique process that digs down far deeper into the 100% Pure Pennsylvania ... digs out up to 20% more carbon-and-sludge formers.

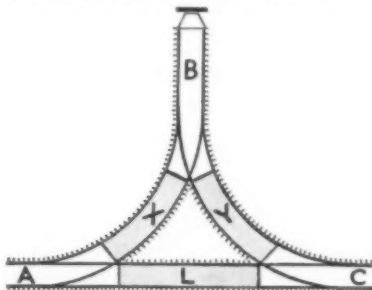


JUST-TO-PASS-THE-TIME-AWAY DEPT.

The other day we were kidding a rail-roading friend of ours.

"Must be kinda' dull in your business," we said sympathetically, "with all the difficult operation problems worked out years ago."

"Take that back," says he, "or I'll give you a real problem to solve!" We wouldn't so here it is as he told it:



"We have a single track running from Point A to Point C. Halfway, there are two sidings leading into a short, common stretch of track (B). B will accommodate a freight car but not a locomotive. Hence, if the engine goes up a siding, it must come down the same way.

"Yesterday we had a locomotive (L) between the sidings and two freight cars (X and Y), one on each siding. The express was due and we had to interchange the two cars (without allowing any flying shunts) and get the locomotive started down the main track *in ten minutes flat!*"

(Somehow we just hate to think of the consequences, if we had been the engineer. But let's see if any of our readers are better railroad men than we are. Send your answer to T.W.T. for the official version.)

THIS MONTH'S WHOPPER

Dear T. W. T.:

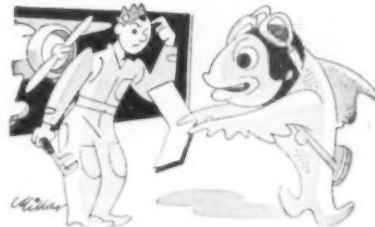
When the wife first brought Herman home from the pet store, I nearly busted a prop. Imagine a goldfish named Herman. Sillicst name I ever heard. But then, Herman was a silly goldfish.

He hated to swim. He had no sense of direction. And he was lazy. You can see why I began to take a liking to him. I'm sort of that way myself.

But it didn't seem right to me that Herman didn't like to swim. What's a fish for? I tried to interest him in chasing the guppies that shared his bowl, but Herman was pretty diffident about it. Once in a while, he'd do a few laps, but he got so unpopular—buttering the guppies—that he gave up. After that he'd just lie flat on his stomach on the bottom and sort of brood. First he brooded only little broods, but he got broodier and broodier by the day.

Finally, I couldn't stand it any longer. So, I packed Herman off to the airport. When I got there, I changed the water in the bowl. Before I put fresh water in, I added three drops of Gulf Aviation Gas to it. Then I put Herman and the guppies back.

First thing I knew, Herman started humming like a small sewing machine. He rose slowly, spreading out both fins, and after a few taxis up and down the surface of the water, he just plumb took off. After banking to the right over the wash-stand in the Men's Room, he went into a series of Immelman's, inside loops, and falling leaves that stood my hair on end! After about 12 minutes, he cut his motor and started losing altitude. And, dipping one fin solemnly over the can of Gulf Aviation Gas, he circled



the bowl three times and made a nice, easy landing without so much as a splash.

I left Herman at the airport after that performance. He seemed more in his element.

When I last saw him—a couple of weeks back—he was trying to convince a grease monkey he'd had 1,000,000 goldfish-flying hours and ought to get himself hung from the rafters of the Smithsonian Institute as an example to his descendants! The grease monkey was pretty impressed.

Low Wing Vollmer

Gulf Oil Corporation and Gulf Refining Company ... makers of



GULF AVIATION PRODUCTS

Congress

(Continued from page 1)

available for purchase and construction of aircraft. Of this latter amount, however, \$20,000,000 is for payment of obligations incurred under the contractual authorization in the Naval Appropriations Act for fiscal 1940. Maintenance and operation of the naval aircraft factory, air stations, air bases, overhaul of planes, etc., will take \$34,804,100, while continuation of experimental and development work on all types of aircraft, including payment of part-time employees, will cost \$7,500,200.

In the budget, President Roosevelt asked under "emergency national defense" a total of \$271,999,523. The House Appropriations Committee on Jan. 10 cut this amount to \$267,197,908 and reported the bill to the House. This measure carries funds for 518 new Navy planes, which are in addition to the regular appropriation.

For fiscal 1940, the Bureau of Aeronautics received for construction of aircraft \$46,898,000, plus \$35,900,000 for other items. Under the original naval expansion act, the bureau contemplated purchase of 597 planes in 1941, 570 in 1942, 641 in 1943 and 499 in 1944, when maximum strength is to be reached. The 518 planes in the emergency measure will alter this, however. Several months ago it was stated that when all fiscal 1940 planes are delivered the Navy expects to have about 2,132 ships.

The Civil Aeronautics Authority in the President's budget is to receive \$28,921,623 for 1941, compared with \$25,518,000 in 1940, an increase of \$3,403,623. Funds for various activities, with 1940 figures in parentheses, are as follows: general administration, \$1,680,121 (\$1,510,983); economic regulation, \$519,222 (\$469,222); maintenance and operation of air navigation facilities, \$12,000,000 (\$9,510,487); technical development, \$557,000 (\$557,000); safety regulation, \$2,420,000 (\$1,990,308); civilian pilot training, \$6,000,000 (\$4,000,000); establishment of air navigation facilities, \$5,265,280 (\$7,000,000); printing and binding, \$100,000 (\$100,000) Air Safety Board, \$380,000 (\$380,000).

Major part of the funds provided for civilian pilot training are \$5,000,000 for flight training, compared with \$3,237,550 in 1940, and \$360,000 for ground training, compared with \$206,000 in 1940.

For domestic air mail, the Post Office Dept. is scheduled to receive \$19,380,350, compared with \$18,643,000 in 1940, and \$15,674,149 for foreign air mail, compared with \$12,519,520 in 1940. It is known that the amounts contained in the budget are considerably less than those requested by the P. O. It also is known that the \$19,380,350 for domestic contains no funds for new routes. The P. O. intends to wait until the CAA

REA Answers Airlines on Certificate Issue; Discusses Loening Plan

Replying to the airlines which oppose the issuance of a "grandfather" certificate to it, Railway Express Agency on Dec. 28 filed a brief with the CAA stating that it is an air carrier and therefore entitled to such a certificate.

REA also charged that the brief submitted by Grover Loening, noted aviation consultant, was "predicated upon hypothetical and highly speculative notions wholly irrelevant to the purpose of these proceedings," and asked that it be barred from consideration. Loening had advanced a plan for a \$2,000,000 express company at least 51% owned by the airlines, while Guy Sherman Paschal had mentioned a similar idea, adding that REA's affiliation with the railroads retarded the development of air express.

The REA request brought response from Loening, who filed a letter with the CAA asking that if his brief is not considered, the REA certificate hearing be re-opened. "The effort of Railway Agency to have my brief thrown out is too obviously designed to evade the issues by hiding behind legal technicalities, if such exist," Loening stated. "A new hearing would enable me to present additional data to satisfy the Agency, open up to shippers and others opportunity to review the adequacy of the service, investigate the accounting methods and justification for the high charges, etc."

Loening and Paschal, REA's brief stated, "contend that air express operations might be expanded more rapidly and conducted at greater profit to the airlines under various other suggested

arrangements, most of which, in one form or another, have heretofore been tried or considered and found to be inadequate, inefficient and generally unsatisfactory. The various devices, schemes and plans for furthering air express transportation operations advocated and sketchily outlined by Mr. Loening and Mr. Paschal are at no place mentioned in the record in these proceedings. All of these matters become the basis of argument only after a full hearing in which all of the relevant and material facts are adduced, and only upon such a hearing is applicant afforded a proper opportunity to inquire into the accuracy of, and if need be, to reply to, the assumptions, statistics, computations, cost analyses, allegations and conclusions set forth in the briefs. Much of the Loening brief, particularly, is predicated upon hypothetical and highly speculative notions wholly irrelevant to the purposes of these proceedings, and applicant objects to the consideration by the Authority of such matters on the ground that they are irrelevant and immaterial and not properly a part of the record in this case."

In support of its contention that it should receive a certificate of convenience and necessity, REA stated that it is an air carrier. "The word 'indirectly' (used in the Civil Aeronautics Act) certainly is applicable to the type of operations conducted by applicant," the brief said. "If not, it can have no meaning or effect whatever." REA also contended that additional authority would be necessary before it could operate aircraft.

"The issuance of a certificate to applicant would have the effect of certifying that applicant is the recognized carrier over which the Authority has jurisdiction with respect to air express rates and service. If the Authority does not so certify applicant and endeavors to regulate the express rates and service through the individual carriers operating aircraft a chaotic condition would result because of the necessity for the several aircraft companies to establish joint rates and through routes and arrange for transfer of express matter between the several airlines, to say nothing of the resulting difficulties and expense of accounting, allocating loss and damage to the airline responsible and the handling and settlement of loss and damage claims, etc. It seems obvious that the orderly regulation of air express transportation can best be accomplished by certifying applicant as the carrier primarily responsible for all matters relating to such transportation."

American Airlines, Continental Air Lines, Eastern, Mid-Continent, and TWA had filed briefs stating that REA should not be granted a certificate. United Air Lines urged the granting of a certificate containing a clause restricting REA to the type of operation conducted during the "grandfather" period.

5 Join SPA

New members of the Sportsman Pilots Association are Mrs. L. K. Boswell, Cleveland, O.; Mrs. Mabel Clemson, Middletown, N. Y.; W. W. Griffith, Mt. Kisco, N. Y.; W. Sam Carpenter, Greenville, Del., and Louis D. Lighton, Culver City, Cal.

Tri-State to Seek Eight New Routes

Tri-State Aviation Corp., operated by Dr. L. S. Adams, inventor of the pick-up and delivery device, has indicated that it intends to file applications with the CAA for several new routes in the near future.

Routes contemplated are: (1) Newark, N. J., to Dayton, O., via Philadelphia, Baltimore, Washington, Cincinnati, Louisville, Indianapolis and 42 other intermediate points; (2) Indianapolis to Chicago via Ft. Wayne and eight other stops; (3) Cincinnati to Detroit via Columbus and eight other stops; (4) Chicago to Findlay, O., via eight stops; (5) Columbus to Bucyrus, O., via Pittsburgh and seven other stops; (6) Philadelphia to Pittsburgh via Harrisburg and 30 other stops; (7) Baltimore to Newark via 13 stops, and (8) Newark to Detroit via Buffalo and Erie.

In addition, the company is seeking "grandfather" certificates for operations from Baltimore to Pittsburgh and Pittsburgh to Morgantown, W. Va. On seven of the new routes, Tri-State asks mail-property certificates, "also passengers locally at such towns as have adequate airport facilities and to and from the nearest terminals on established airlines." Only property would be carried between Newark and Detroit. Authority will also be requested to use motor vehicles "incidental to its airplane transportation in the delivery of mail, property and passengers to communities in a radius of 10 to 15 miles from each airport depending on the importance of the district."

Adams Nominated for Award

Dr. Lytle S. Adams, of Wilmington, Del., who developed the device which enables planes in flight to pick up and deliver mail or other loads from a ground station without landing, has been nominated for a "Modern Pioneer" award which will be presented in New York on Feb. 27 by the National Association of Manufacturers.

Archer Elected NWA Board Chairman; White Is Director

Shreve M. Archer, president of Archer-Daniels-Midland Co., Minneapolis, was elected chairman of the board of Northwest Airlines, subject to CAA approval, at a special meeting of NWA's board on Jan. 2. Edwin White, president of Kalman & Co., St. Paul, was appointed a director to fill the vacancy created by the resignation of Richard C. Lilly.

The board also appointed an executive committee consisting of Archer; Croil Hunter, president of the company; George E. Gardner, E. I. Whyatt and J. T. Johnson, president of the Milwaukee Co., Milwaukee, and director of NWA.

SUNCOOK MILLS
LEADING MANUFACTURERS
OF FABRIC AND
TAPES FOR THE
AIRCRAFT INDUSTRY



FLIGHTEX



40 WORTH STREET, NEW YORK
Export Representative—
Aviation Equipment & Export
Inc., 25 Beaver St., N.Y.
Cable Address—"Aviquipa"

WORLD'S PREMIER FLIGHTEX FABRIC AIRPLANE FABRIC

Hearing on Proposed Purchase of Western Air by United Opens

UAL Witnesses Point to Advantages of Operations by One Company; Claim WAE Employees Will Not Lose Jobs

Long-awaited hearing on the application of United Air Lines for CAA approval of acquisition of Western Air Express opened in Washington on Jan. 8 before Special CAA Examiner Roscoe Pound.

Present as interveners are TWA and the minority shareholders of WAE in opposition to the application, and WAE Corp., which states that it is neutral and intervened only "to make certain that correct and true facts are entered upon the record."

Through Jan. 10, United has presented as witnesses Phil Willcox, secretary and assistant to the president; Jack Herlihy, vice president-operations; Ray Ireland, traffic manager; Homer Merchant, regional traffic manager in Los Angeles; L. C. Armond, manager of the reservations department at Burbank, and Thomas Crowell, of Ford, Bacon & Davis, engineers, who have made a survey for UAL. W. A. Patterson, president, was to testify as this issue went to press.

Many duplications, such as "annoying and costly accounting and record keeping," could be avoided by a merger or purchase of assets of WAE by UAL, according to Willcox. He mentioned specifically annual reports to Delaware, California and Utah, separate income tax returns, capital stock evaluations, annual reports to stockholders, social security tax returns, monthly and annual reports to the CAA, general legal expense, etc.

Willcox stated that it has not been decided whether there will be a merger or whether UAL will purchase WAE's assets. A decision has not been possible because it is dependent upon action of the directors of UAL and WAE, he pointed out, explaining that in the case of a merger, the laws of Delaware require separate action of the majority of the directors of each company as well as action by the holders of two-thirds of the stock of each company.

Just before opening of the hearing UAL announced that 70% of the capital stock of WAE has been deposited under the agreement providing for the sale of the stock to UAL, subject to CAA approval.

Both Herlihy and Ireland testified that the two companies could be operated with less personnel than under the present arrangement. Both stressed, however, that no WAE employees would lose their jobs. Such employees will be used in the "normal growth" of the UAL system, they stated.

Two exhibits introduced by Herlihy showed that additional personnel

which UAL would have required in 1939 to operate all WAE schedules would have totaled 141, with annual payroll of \$396,198.40. During June, 1939, WAE employed 184 persons with monthly payroll of \$40,217.96, compared with the additional 141 UAL employees with monthly payroll of \$53,017.00. Thus UAL sought to prove that 43 less employees would have been required with \$7,200.96 less monthly payroll.

Economies of consolidation were given by Herlihy as purchasing department savings, operation with less planes, savings in hangar rents, airport fees, etc., and overhaul and repair economies. Advantages which can be obtained under common ownership which would not be possible under the Salt Lake interchange of equipment previously sought by the two companies were stated by Herlihy and Ireland to be: (1) more efficient supervision of dispatch at Salt Lake; (2) avoiding of ferrying movements; (3) standardization of equipment for transcontinental business would be possible; (4) ticketing would be simplified; (5) effect of advertising increased; (6) through service from Los Angeles with DC-4's possible; (7) operation of second sections possible.

Two daily round trips in and out of Los Angeles will be operated under the merger with no change at Salt Lake, according to Ireland's exhibits. He also said that the Los Angeles-San Diego round trip fare would be \$9—tariff now charged by WAE, as compared to \$10.80 by UAL.

Both Merchant and Armond stated that principal objection to using WAE-UAL service on transcontinental trips was the change of planes at Salt Lake City in early morning hours. Merchant said that merger of the companies would naturally take business from TWA and American Airlines out of Los Angeles, but that American would lose the most. Early inauguration of four-engined Boeing transcontinental service by TWA would seriously affect WAE-UAL business in Los Angeles, he added. Crowell favored the acquisition on the grounds that WAE and UAL would be able to compete on a more even basis with TWA and American in Los Angeles.

At the opening of the hearing, the minority shareholders of WAE presented a motion to confine proceedings to the question of whether or not it is proper under section 408 of the Civil Aeronautics Act for UAL to acquire control of WAE. They asked to have stricken those portions of the application "which refer to the prayer of said application seeking approval of the merger of WAE into United, or the purchase by UAL of the assets of WAE." The minority group argued that the CAA cannot properly approve an indefinite arrangement, and cannot approve a merger or sale of assets that has not been properly authorized by the respective corporations. Dean Pound, however, did not rule on the motion, stating that it could be presented in final argument.

Appearances for the various parties are: UAL, Paul Godehn and Frank Quindry; CAA, Hubert Schneider; TWA, Horace Hitchcock, Gerald Brophy and John Lorch; WAE minority, Oscar Trippet and Leslie Craven; Western Air, Quigg Newton and Harold Fabian.

Casper Improving Port

Casper, Wyo.—A \$119,928 improvement program for municipal airport here, with Natrona County furnishing \$27,846 of the total, has been approved by WPA.

New York Operator



Operator Gordon Hamilton, on duty in the control tower at New York Municipal Airport, talks to the pilot of a transport flying overhead. (American Airlines Inc. Photo).

N. Y. Airport Control Among Nation's Best

Flight control at New York's LaGuardia Field, protecting the arrival and departure of planes, is effected by a coordinated communication system extending from the radio range at Maspeth, L. I., to the control tower atop the airport's administration building. The equipment, installed by Radio Receptor Co. Inc., New York radio contractor, gives the new airfield claim to one of the best control systems in the country.

Guiding the airport approach is the Maspeth range station, consisting of five steel towers 125 ft. high and transmitting along beams NE, NW, SE and SW, the NE beam being the most important as it lays a course on the field's longest runway. A pilot passing over the range station normally picks up the NE beam and follows it in, receiving traffic instructions from the control tower operator as the plane nears the airport.

Receivers and antennas for the field are located on Rikers Island in New York's East River, whence signals are transmitted over wire lines to the control tower at the airport. The 15 receivers, manufactured at the Kearney works of Western Electric Co., are so designed that no sound is heard until the plane actually starts to transmit. This feature of the receiver turning on automatically only when a carrier wave from the plane's transmitter comes in eliminates operational difficulties otherwise likely with 15 sets in constant action.

Two monitor units, one in the commissioner's office and one in the airport director's office, provide opportunity for listening to the traffic control operation whenever desired.

Pan Am Awards Fellowships For Study in Chile, Argentina

One-year traveling fellowships sponsored by Pan American Airways and Pan American-Grace Airways have been awarded to Robert K. Hall of Bloomfield Hills, Mich., and Harry J. Tomlinson of South Bend, Ind., according to announcement by Dr. Stephen Duggan, director of the Institute of International Education and airline officials. Hall will study in Argentina and Tomlinson will enter the University of Chile.

Established three years ago, the fellowships were continued for 1939-40 at request of the State dept. and of leading educational institutions. Other countries designated for current awards are Brazil, Peru, Mexico and Venezuela.

PICK A BOEING SCHOOL MAN

Graduates of any of the 11 Career courses of Boeing School of Aeronautics (a Division of United Air Lines) are not ordinary aviation school men. They are thoroughly trained. If you need a pilot, a field passenger agent, a radio operator, an engine mechanic—or whatever—look up a Boeing man first. Send us your prospective needs. No expense to you, nor them. Make sure that you get the best personnel possible. 85% of all Boeing School-trained men are now employed—by 43 companies!

BOEING School of Aeronautics

A DIVISION OF
UNITED AIR LINES



5010, Hangar No. 5
Airport, Oakland, California

In months we shall probably need the following personnel.
Please send us brief biographies of men likely to be available then.

Name Company

Address

Leaving the Conference



V. E. Chenea, general traffic manager of Pan American Airways, is shown boarding a TWA ship at Chicago to return to New York after attending the Air Traffic Conference of the Air Transport Association in Chicago. Pictured with Chenea is J. A. Thomas (right), TWA's Chicago sales manager.

AMERICAN AVIATION

The Independent Voice of American Aeronautics

Published the 1st and 15th of each month

WAYNE W. PARRISHEditor

ERIC BRAMLEY

Assistant Editor-Magazine

GEORGE N. SHUMWAY ..News Editor

LEONARD EISERER

Assistant News Editor

Editorial and business office, Earle Bldg., Washington, D. C. Published by American Aviation Associates Inc.; Wayne W. Parrish, president; Albert H. Stackpole, vice president; Edward J. Stackpole Jr., secretary-treasurer, 104 Telegraph Bldg., Harrisburg, Pa.

Address all correspondence to AMERICAN AVIATION, Earle Bldg., Washington, D. C.

ALBERT H. STACKPOLE

Associate Editor

ROBERT H. WOOD

Assistant Editor-Daily

JOHN T. SHANNON

Advertising Manager

F. G. KNIGHTCirculation Manager

Subscription rates—\$3.00 per year, 15¢ per copy; Canada and Pan American countries—\$3.50; all other foreign—\$4.00.

Entered as second-class matter at the Post Office at Washington, D. C., with additional entry at Harrisburg, Pa.

AMERICAN AVIATION DAILY: Published six days each week except holidays, dispatched by air mail. A confidential news letter covering daily developments in aviation and the national capital. \$15 per month, \$180 per year. Service Bureau available to all subscribers. Special telephone District 1681.

Fortnightly Review

(Continued from page 1)

but we propose that all aviation—airlines, manufactures, private pilots and all aeronautical organizations—adopt "The Flying Forties" as a slogan and a byword.

The new decade should bring feeder airline service to every community of the United States of 5,000 population and over, with pick-up and delivery service to hundreds of smaller communities. It should bring more frequent main line service to all parts of the country. It should bring cheaper private airplanes, built for utility rather than for sport, into the price range and usefulness of thousands of individuals and business firms. It should bring all over-night first class mail by air without surcharge. It should bring cheap long-distance freight and express service by air. It should open up numerous new trade routes and knit into close commerce and communication the most isolated sections of the nation. It should make possible "mobile classrooms" whereby school children studying geography can be transported to various sections of the country to study the country at close hand.

An infinitely fascinating decade is ahead. It can be—and will be—"The Flying Forties".

Cut the Red Tape

ABOUT nine months ago Pennsylvania-Central Airlines filed an application with the Civil Aeronautics Authority for permission to stop regularly at Erie, Pa., on its Pittsburgh-Buffalo route. There was no opposition to such a stop, there was no competition involved, and the airport at Erie is suitable in every way and approved for aircraft of larger size than the Boeing 247-D's which PCA proposes to take into the field. For these nine months PCA has been flying over Erie twice a day but is unable to land to take on or take off passengers. It is probably the simplest, least involved application the CAA has had before it. During the nine months there probably have been many passengers desirous of going to or from Erie, since the city is industrial and deserving of more service than it now receives. There are many justifiable reasons why the CAA requires many months to solve complicated cases, but the CAA could bring much praise to its ears if it found some way of speeding up simple matters such as the Erie application. There is no logical reason for a city the size of Erie being deprived of air service when a non-mail operation already crosses over it.

World Record

AFTER seeing so much red ink on the books of airlines since 1934, there must have been some who rubbed their eyes with salty disbelief at reading newspaper headlines in December. An airline had actually reported a net profit for the 10 months of 1939 amounting to \$3.88 a share. It wasn't so long ago that losses amounted to almost that much.

But 1939 was a good year and especially for American Airlines which managed to break about every traffic record in the world. The full year's reports are not yet in, but during the first 10 months American's net profit amounted to \$1,171,412 after depreciation, obsolescence,

Folks Worth Meeting—

WITH a history in aviation that began in May 1917 when he entered the First Officers' Training Camp at Ft. McPherson, Ga., R. D. Bedinger, supervisor of the CAA's 7th region, with headquarters at Boeing Field, Seattle, Wash., in 1933-34 was engaged in testing the first Douglas transport model DC-1 and the present Boeing model 247-D.

Beginning at Los Angeles on Jan. 1, 1933 as engineering inspector, he served in that capacity until Jan. 1934, covering the engineering inspection on the west coast.

Turning back to Bedinger's earlier history, he was graduated from the Georgia Tech Ground School in Sept. 1917, and in the following month, as a cadet, was sent to France, arriving at Issoudun on Nov. 2. On Dec. 26 of the same year he arrived at Chateauroux for primary training and was graduated with French Brevet in Mar. 1918.

Returning to Issoudun he was commissioned as first lieutenant and continued pursuit training, later being assigned as instructor on dual control Neuports at Issoudun, where he remained until Armistice. Bedinger returned to the U. S. in Nov. 1918 and was assigned as pursuit instructor at Carlstrom Field, Arcadia, Fla., being discharged in February of the following year.

In 1922 he was recommissioned in the Air Corps Reserve, and since was promoted to the rank of major in the Air Corps Reserve. He flew with that organization and in commercial operations until May 1928 when he was engaged by the Dept. of Commerce as an aeronautical inspector.

Bedinger served one year as inspector at Memphis, Tenn., covering the states of Missouri, Arkansas, Georgia, Tennessee, Mississippi and Alabama. During part of that time he also served as factory inspector at Spartan Aircraft Co., Tulsa, Okla., and at Curtiss-Wright in St. Louis, Mo. With a transfer to Houston, Tex., in July 1929, he covered southern Texas as aeronautical inspector.

In Oct. 1929 Bedinger was transferred to Detroit as supervising aeronautical inspector for southern Michi-

gan, Indiana, Ohio and Kentucky, serving in that capacity for one year after which he was transferred to engineering inspection at Detroit. Remaining at Detroit until the end of 1932, he was transferred immediately to Los Angeles as engineering inspector where he did inspection work on the Douglas and Boeing models.

He was transferred to Oakland, Cal., in Jan. 1934 as supervising aeronautical inspector for the old 8th inspection district covering northern California, Nevada, Utah, Wyoming, Montana, Idaho, Washington and Oregon. During part of the time he was supervisor of general inspection in Alaska. He remained at the Oakland position until May 1938 when he was appointed supervisor of the 7th region, CAA, covering Washington, Oregon, Idaho, Montana and Alaska.



Bedinger

Obituary

WILLIAM J. BARRY, 65 since 1929 secretary-treasurer of Transcontinental Air Transport, one of the predecessor companies of Transcontinental & Western Air Inc., died at his home in New York City on Dec. 22.

VICTOR W. KLESERATH, 58, vice president of Bendix Aviation Corp., South Bend, Ind., died Dec. 21 of a heart attack at his home in Manhattan, N. Y. He joined the Bendix organization in 1932 as a director and served as vice president in charge of engineering until 1938. In 1938 his duties with the company took him to New York.

CHARLES C. MCINTYRE, 53, an employee of Lockheed Aircraft Corp. for six years, died Dec. 23 following an operation.

REAR ADM. JULIUS C. TOWNSEND, 58, commandant of the 4th Naval District, with headquarters at the Philadelphia Navy Yard, who was in command of the U. S. Naval Air Station at Whiddy Island and Queenstown, Ireland, during the World War, died Dec. 28 in Brooklyn, N. Y.

Omaha Ship Tested

Omaha, Neb.—First tests of a ship built by William Durand, aeronautical engineering instructor at the University of Omaha, were made recently at municipal airport. Ship was designed for possible commercial production. A high-wing monoplane, it is 17 ft. long and has a 30-ft. wing span and a height of 5 ft. 6 in. It is fitted with a 45-hp. three-cylinder air-cooled engine, has a top speed of 96 mph. and a landing speed of 45 mph.

Copeland-Chapline

George Chapline, vice-president of Wright Aeronautical Corp., and Miss Louise Copeland were married on Jan. 4 at Miami Beach, Fla.

interest and taxes. American's record for the year is all the more remarkable when one considers the progress it has made from the flimsy, loosely-organized and disjointed groups of lines which were put together in jig-saw fashion to form American Airlines less than a decade ago. Few would have had the courage to undertake the job which C. R. Smith agreed to handle when he was elected American's president. With two strikes against him, C. R. Smith welded American into a solidified system which in 1939 carried substantially over a half million passengers, by all odds a world record. In fact, American carried a third of all the airline passengers in the United States for 1939.

It was only 12 years ago that American carried a grand total of 190 passengers. Next year it carried over 2,600. A decade ago the number was 66,021, and from that year on the growth was steady, although both 1933 and 1934 were below 1932. For the first 11 months of 1939 American carried 48.4% more revenue passengers than the same period in 1938. In aviation we are accustomed to big increases, but as airline traffic increases into big figures, a 48% jump is something to conjure with. The phenomenal growth of American into the largest airline system in the United States and the largest air carrier of passengers in the world is one of the sagas of the decade just closed.

Capital Notes

PRESIDENT ROOSEVELT'S BUDGET breaks last year's peacetime record for national defense expenses by estimating a total of \$1,839,000,000 for the continuance of the present defense program and enlargement of certain phases of it.

Aircraft manufacturing and related industries will receive a large slice of this appropriation: \$182,000,000 is estimated for the Army Air Corps, \$111,117,500 for the Navy's Bureau of Aeronautics. The War Department is expected to spend over \$40 millions for complete airplanes, while the Navy budget estimates almost \$68 millions for the purchase and construction of aircraft.

In presenting this huge defense budget, the President suggested new national defense taxes to raise \$460,000,000 and intimated a preference for higher income, gift and inheritance taxation.

The unpopularity of any new tax program in an election year is driving increasing numbers of Congressmen to question the need for such vast defense expenditures. Investigation of the requirements, costs and administration of the national defense is being urged in many quarters. Senator Austin, for example, has declared that without an inquiry, the Military Affairs Committee will authorize no further expansion of the military establishment.

Meanwhile, young Representative Voorhis of California lived up to his summer threats by introducing a bill levying heavy taxes on the profits of war industries. It is thought extremely unlikely, however, that he and his isolationist backers can shove through such a measure.

CIVIL AVIATION, lacking the patriotic appeal of national defense, faces another year of relative Congressional indifference unless, in the words of House Appropriations Chairman Taylor, "a sentiment of appreciation of aviation is developed in Congress. . . . Members of the House must be sufficiently impressed to cut out other appropriation items and go to bat before aviation can expect the attention and Federal support it has come to deserve."

While Federal appropriations for the purchase of military aircraft stole the aeronautical show in Congress last session, civil aviation was conspicuous in its legislative failures. Cuts in funds for air mail and weather aids, reductions in the civil pilot training program, utter indifference to the airport expansion bill, and failure to include CAA among agencies exempt from reorganization are but a few illustrations.

Particularly vital to the future progress of air commerce is the fate of the McCarran resolution for a standing committee on aviation. Time and again the resolution appeared on the Senate calendar, as regularly was passed over. During the first few days of the present session, it happened again.

This resolution would take the consideration of aviation matters out of the Senate Commerce Committee which is already weighted down with intricate shipping problems and place it in a committee of its own where the industry could be assured of sympathetic and understanding attention to its needs.

Political observers believe—and in this friends of aviation on Capitol Hill frankly concur—that only through intelligent organization of the various phases of aviation interests can the industry hope to gain the recognition from Congress that its modern stature demands. The Aeronautical Chamber of Commerce during the past year has accomplished much for manufacturing interests. But they after all comprise but one branch of the aviation business. A unified, co-ordinated campaign of education through local efforts, under the guidance of a strong central organization, would appear to answer the major problem.

NAVAL EXPANSION immediately hit the front pages as the House Naval Affairs Committee opened hearings last week on the Vinson bill. Although not yet approved by the Budget Bureau, Chairman Vinson appears confident it will be. This is the bill doubling Naval air strength to 6,000 aircraft. Present arguments are centering on the surface fleet provisions, but some trouble is anticipated for the section authorizing procurement of aircraft and ships by negotiation—when the "interests of the national defense" require. A similar request by the War Department last year for liberalization of aircraft procurement procedure was promptly denied by the House Military Affairs Committee. Even a substitute proposal retaining the competitive bidding principle failed to pass during the closing days of the session.

FINNISH ENVOYS are surprised and annoyed by recurring reports that they are abandoning efforts to obtain military airplanes here. The facts are quite the contrary. In aviation circles speculation is still directed toward the possibility that France and Great Britain may relinquish priority rights to some of their orders in American aircraft plants. Meanwhile numerous bills offering aid to Finland are dropping in the legislative hopper.

NEW MERCHANT MARINE DESIGNS for trans-Pacific liners provide luxurious deck space with funnels on the side: Navy requirements call for easy convertibility into aircraft carriers.

Civil Service Exam Posted

Open competitive examinations for special agent (\$3,800 yearly) and assistant special agent (\$3,200 yearly) in the Civil Aeronautics Authority have been announced by the U. S. Civil Service Commission. Deadline for applications, Jan. 23; western states, Jan. 26.

Fox Named Pesco Agent

Clarence G. Fox has assumed the position of purchasing agent for Pump Engineering Service Corp., division of Borg-Warner Corp. at Cleveland, D. E. Gamble, president, revealed on Jan. 2. Fox previously was connected with Marvel-Schebler Carburetor Div. of the Borg-Warner organization.



"What did I tell you about opening tin cans with my propeller?"

Aero Bookshelf

AIRCRAFT RADIO AND ELECTRICAL EQUIPMENT, by Howard K. Morgan; Pitman Publishing Corp., 2 W. 45th St., New York; \$4.50.

This book represents a real contribution to the subject of aircraft radio. Morgan holds a B.S. degree in electrical engineering from the University of California, and in addition has been in the communications' department of Transcontinental & Western Air Inc. since 1932, and is now superintendent of communications of that company. He therefore knows his subject from not only the theoretical but also the practical standpoint. There are only a few men in the country whose experience combines aircraft radio theory and practice, and Morgan's book represents the first time any one of these men have gone into print.

Realizing that everyone interested in flying is also concerned with such vital aids as the radio and electrical equipment of planes and airways, Morgan has designed his text to provide simple explanations of all phases of the subject. It is written not for those trained in electrical science, but for the ordinary user of the apparatus with which it deals. It explains fully the basic principles and theories on which aviation radio and electrical apparatus operates, explains them so simply and clearly that anyone in the least mechanically minded can understand and follow. It describes modern equipment in detail, with diagrams accompanying, and prepares the reader for the further developments which are now in process or are to be expected.

—P. G.

YOUR CAREER IN AVIATION, by Charles S. Mattoon; Foster & Stewart Publishing Corp., 77 Swan St., Buffalo, N. Y.; 146 pp.; \$1.50.

Explaining the opportunities for employment in various divisions of the aviation industry, the author lists requirements in commercial aviation, military aviation, aircraft manufacture,

for pilots, engineers, mechanics and apprentices. Suggestions are given on how to qualify for a job, where to apply for a job and how to apply for a job, and all about training schools. Most of the glamour usually attached to aviation is missing in Mattoon's writing.

Purpose of this liberally illustrated book is to aid the thousands of young men who have no other means of obtaining advice or guidance in the vocational opportunities of the aviation industry. The author points out in his introduction that "aviation has settled down into a work-a-day world, bending its efforts toward a practical service to mankind."

Mattoon is personnel director of Curtiss Aeroplane Div. of Curtiss-Wright Corp., Buffalo. During his many years in the industry he has interviewed and hired many thousand of men for all types of aircraft work.

WIND SAND AND STARS, by Antoine de Saint Exupery. Reynal Hitchcock, \$2.50.

To all those who have read "Night Flight" the name of St. Exupery is synonymous with beauty in writing, and they will not be disappointed by his latest volume. Behind a technical knowledge of his subject that is more than adequate for the purpose, St. Exupery has a fine feeling of drama, and his story of the projected long distance flight, its unhappy but fortunate ending in a desert crash, and the aftermath of this experience provides a thoughtful study for those both in and out of aviation.

St. Exupery does more than write of flight. He goes behind the pure mechanics of man in the air, and searches the minds of those who go out to the heavens in ships.

Vega Elects Wulfekuhler

Louis W. Wulfekuhler, assistant secretary of Lockheed Aircraft Corp., recently was elected to the same office of Vega Airplane Co., Burbank, Cal.

AIR CARRIER RECORD

(C. A. A. Applications, Hearings, Dockets)

APPLICATIONS

Tri-State to Ask New Lines

Tri-State Aviation Corp. has indicated that it intends to ask the CAA for eight new routes in the near future. Complete story on page 12.

PAA Applies for Atlantic Mail Rates

Pan American Airways has asked the CAA to set mail rates for six weekly trips across the Atlantic to Lisbon. Complete story on page 8.

Colt Asks Directorate Approval

S. Sloan Colt on Jan. 4 filed application with the CAA for approval of certain interlocking directorates involving Pan American Airways Corp., Pacific Alaska Airways (PAA), PAA, Inc., PAA (Del.), PAA (Nev.) and Pan American Airways Supply Corp.

PAA Asks New Orleans Stop

Pan American Airways on Jan. 14 applied to the CAA for a mail-passenger-express route between Guatemala City and New Orleans. Complete story on page 9.

American Asks Lubbock Stop

American Airlines on Jan. 2 amended its application for an Oklahoma City-San Diego route to include Lubbock, Tex., as an intermediate stop. Other intermediate points requested are Albuquerque, Phoenix and El Centro.

HEARINGS

Export Hearing Ends

Hearing on the application of American Export Airlines for trans-Atlantic routes to England, France and Italy ended Jan. 10. Complete story on page 7.

UAL-WAE Merger Hearing Opens

Hearing opened Jan. 8 before Special CAA Examiner Roscoe Pound on the application of United Air Lines for approval of acquisition of Western Air Express. Complete story on page 13.

INTERLOCKING DIRECTORATES

Boston-Maine Directorates Approved

The following Boston-Maine Airways interlocking directorates have been approved by the CAA: Samuel J. Solomon as vice-president and director of Boston-Maine Airways and National Airport Corp.; Lawrence Whittemore as vice-president and director of the airline and assistant to the president of Boston & Maine Railroad and Maine-Central Railroad; John W. Rimmer as vice-president of the airline, vice-president-traffic of Boston & Maine Railroad and director of Boston & Maine Transportation Co.; George Glacy as treasurer and director of the airline, comptroller of BM Railroad and the transportation company, and assistant to the vice-president of Maine-Central Railroad; Arthur Nichols as clerk of the airline, vice-president and clerk of BM Railroad, and treasurer and clerk of the transportation company; William Cole as counsel and director of the airline, counsel for the transportation company, and general attorney of BM Railroad; Albert Raynes as comptroller and director of the airline and treasurer of Maine-Central Railroad; Henry McCarthy as general traffic manager of the airline and passenger traffic manager of the two railroads, and Harty Carsoh as director of the airline, general manager of Central Vermont Railroad and vice-president and director of Central Vermont Airways.

MISCELLANEOUS

Railway Express Answers Airlines

Railway Express Agency has filed a brief with the CAA, replying to the airlines which oppose the issuance of a "grandfather" certificate to it. Complete story on page 12.

Dakota Air Transport Withdraws

Dakota Air Transport's request for permission to withdraw its application for a route from Bismarck to Minot, N. D., has been granted by the CAA, with the statement that it is "dismissed without prejudice." A CAA examiner's report issued several weeks ago recommended that the application for the route be denied.

Calendar of Hearings

Jan. 17—Eastern Air Lines, American Airlines, on Eastern's application for review of certain actions of the Postmaster General and its complaint "against certain unfair practices and methods of competition by American."

Jan. 19—Mid-Continent Airlines, new route from Bismarck to Minot, N. D.

Jan. 22—Braniff Airways, Kansas City Southern Airlines, Mid-Continent Airlines, Continental Air Lines, on Braniff's Wichita-New Orleans application, KCSA and MCA Kansas City-New Orleans, and CAL Wichita-Tulsa.

Feb. 5—Braniff Airways, re-opening of rate case.

DELTA ELECTS TWO

Laigh C. Parker and P. L. Higgins Are Directors and Vice-Presidents

Laigh C. Parker was elected a director and vice-president in charge of traffic, and P. L. Higgins was elected a director and vice-president in charge of operations of Delta Air Corp. at the recent annual stockholders' meeting.

Parker, following cancelation of air mail contracts in 1934, became associated with Delta as general traffic manager, which post he held until his election to the vice-presidency. Higgins has been connected with Delta and its predecessor company since 1928.

Culver, Taylorcraft Report

On '39 Production, Sales

Supplementing the information in the Jan. 1 issue of AMERICAN AVIATION on 1939 lightplane production in the U. S., Culver Aircraft Corp., Columbus, O., and Taylorcraft Aviation Corp., Alliance, O., announced the following figures:

Culver—31 ships produced; 30 sold and delivered. Total volume of sales for 1939 was \$126,821.11.

Taylorcraft—Approximately 500 ships produced, with delivery about the same. Of these an estimated 190 were of 65 hp., 5 were 60 hp., 2 were 40 hp., and the remaining planes were of 50 hp.

Failure of Left Engine Caused Pan

American Rio Crash, ASB Finds

Loss of power from the left engine during the landing approach, necessitating an attempted landing under extremely hazardous conditions, was given by the Air Safety Board on Jan. 9 as the cause of the crash of a Pan American Airways' twin-engine Sikorsky S43B at Rio de Janeiro Aug. 13, killing 14 of 16 persons aboard.

Because evidence failed to supply any conclusive explanation for the loss of power, and an examination of the engine revealed no indication of structural failure or mechanical defects in flight, the report stated that "the cause of the loss of power from the left engine is unknown."

On a flight from Miami to Rio, the plane was making a normal approach to the seaplane landing area at the latter point when it suddenly lost power from the left engine, yawed to the left, and started a descending turn in the same direction, the ASB stated. The plane then continued to

lose altitude and to turn at a sharper and steeper angle until it struck a caisson anchored at right angles to a small island in the harbor immediately adjacent to its landing approach path.

"Flight tests conducted with Sikorsky model S43-B aircraft of the same type as NC16933 subsequent to the date of the accident, and observed by personnel of the Air Safety Board, indicate that if power is lost from one engine during flight with the flap in the full down position, the aircraft will yaw to a marked degree in the direction of the inoperative engine and rapidly lose altitude," the report said. "The application of additional power from the operative engine tends to increase the degree of yaw, regardless of corrective measures taken. Further tests conducted by Pan American Airways indicate that S43-B aircraft will not maintain level flight at any altitude with only one engine operative and flap fully extended."

SPA Cruises in March

The annual winter cruise of the Sportsman Pilots Association will head for New Orleans in March. The eastern wing will rendezvous at Birmingham, Ala., March 16, and the western wing will meet at San Antonio on the same date, both wings converging on New Orleans later in the day. Cruise participants will be entertained in the Mardi Gras city from March 16 to 21.

Nuss Resigns Reading Jobs

Melvin H. Nuss, manager of Reading (Pa.) Municipal Airport and secretary of the city's airport commission, resigned from those posts on Dec. 31 to devote his time to private business. He became secretary of the airport commission when it was first formed in 1937. Nuss was largely responsible for the dedication program for Reading's new airport held in October of last year.

Young Renamed to Minn. Board

Dr. George W. Young has been reappointed to the Minnesota State Aeronautics Commission by Gov. Harold Stassen. His appointment runs until 1943. Other members of the commission are Ray S. Miller, chairman; Stanley Hubbard; Croil Hunter, president of Northwest Airlines, and Richard L. Griggs.

Continental Moves Offices

Removal of general and executive offices of Continental Aeronautics Corp., which recently sold its plant to Lockheed Aircraft Corp., to a new location in the Bank of America Building, Glendale, Cal., is reported by W. R. Angell Jr., Continental vice-president.

EAL Opens Employment Field

By employing and training two girls as communications assistants at Newark Airport headquarters of the line, Eastern Air Lines has opened the way for a new field of employment among women, according to announcement by Don C. McRae, superintendent of communications at Newark. The girls, Kathryn Georgia Buhl and Terisita Mary Linden hold third class radio-telephone permits and also are proficient teletype operators.



Out Where
Ground Travel
Is Slow...

Continental, America's Fastest Air Line, offers a saving in time that is truly amazing. When you fly Continental, instead of days, you're there in hours—instead of hours, minutes. Best of all, Continental's low competitive fares mean you pay no premium for this time saving.

CONTINENTAL
AIR LINES
America's Fastest

Photographic Plane for Air Corps



The first of 14 Beechcraft photographic planes, type F-2, produced by Beech Aircraft Corp., Wichita, Kan., to which a contract totaling \$528,749 was awarded in April (AMERICAN AVIATION, May 15, 1939), is now undergoing flying tests at the Air Corps, Materiel Div., Wright Field, Dayton, O., the War Dept. announced on Jan. 4.

The plane is powered by two Pratt & Whitney nine-cylinder radial engines, rated at 350 hp., using a two-blade propeller of a little over eight feet in diameter. Gross weight of the ship is approximately 7,000 lbs. It carries a crew of three men. F-2 is an all-metal low-wing monoplane with a wing span of 47½ ft. and carries no armament.

New Beechcraft is equipped to carry cameras for photographing and mapping missions; for tactical mapping it carries a tandem camera installation of two T-3A cameras, and it is the first plane manufactured which will take a tandem mounting like this one, without modifications. For rapid reconnaissance mapping, tactical mapping and for high altitude mosaic and spotting, other types of cameras may be mounted. (Official photograph, U. S. Army Air Corps).

TWA Installs Passenger Radio System for Popular Programs, Flight Comments

Individual passenger radio speakers enabling air travelers to hear flight comments direct from pilots in the cockpit and listen to their favorite radio programs have been installed on TWA's 22 DC-3's. The sets are controlled by a master receiving unit operated by the hostess, with individual "Hushatone Speakers" so small that they can be held in the palm of the hand or fastened under the seat cover. Speakers are plugged into outlets above each seat.

The new radio system was developed by TWA radio technicians after more than a year of research in which it was necessary to solve many



TWA Hostess Frances Ice explains to Miss Virginia McNabb, a passenger, how the pad-like receiver of the plane's radio system can be adjusted against her ear so that she can get the program without bothering other passengers.

problems before the first regular broadcast service for passengers was available on a plane. The broadcast receiver amplifier was specially developed so that pilots could "cut in" on the broadcast program and make announcements directly to passengers.

Pilot announcements already are attracting more interest among listeners than the most popular programs on the regular 550 to 1,550-kilocycle broadcast band offered between 7 a. m. and midnight, local time, the broadcasting period set by TWA, the company disclosed.

Howard K. Morgan, TWA's chief radio engineer, and his staff worked for months before deciding upon a modified model of a Motorola receiver manufactured by Galvin Manufacturing Co. of Chicago, as the master control unit.

Master receiver is box-shaped with tuning dials set flush with the cabin's rear wall. It is powered by a 12-volt battery and generator. Entire apparatus weighs about 28 lbs.

Individual receivers can be plugged into outlets above each seat so that sound reaches the ear of each passenger but will not disturb anyone in the next seat. "Hushatone" speakers have heavy rubber coverings over bakelite housings, with Rochelle salt crystals that provide high fidelity of sound. They were purchased from Brush Development Co., Cleveland.

The fin antenna of the transport is used to pick up broadcast station signals.

A small amber light at the front of the passenger cabin indicates that a pilot announcement is to be made, and it remains lighted while the pilot is "on the air."

"Because transport planes cover great distances in a short time, hostesses are tuning in different stations about every 200 miles to provide best reception," the company announced.

Complete installation of the new radios brought the Siebenthaler Co. and the Bruce Wilson Electric Co., both of Kansas City, into the picture as well as Galvin and Brush. Siebenthaler aided in designing the seat outlets and Wilson manufactured the control boxes.

3 Leave Airlines for CAA

Three employees of two airlines resigned recently to join the Civil Aeronautics Authority in various capacities. Bob Burnett, United Air Lines' hangar chief at Seattle, has become a CAA inspector of airline maintenance; J. B. Smith, Eastern Air Lines' station manager at Daytona Beach, Fla., joined the CAA in airways control at Newark, and Jim Bow, Eastern's assistant foreman of plane overhaul at Miami, accepted a position with the Authority in Washington.

Mason Becomes First CAA Member

With Pilot Certificate; Buys Stinson

G. Grant Mason Jr., youngest member of the Civil Aeronautics Authority, recently was granted his pilot certificate, having subjected himself to CAA tests for student pilots, thereby qualifying himself to fly his newly purchased Stinson Reliant to the All American Air Maneuvers at Miami early in January.

Mason had said he wanted practical experience in flying and asked no favoritism or special privileges in his training at Hybla Valley Airport,

Alexandria, Va. He passed routine flight and written examinations at College Park (Md.) Airport, becoming the only CAA member holding a certificate.

In the flight to Miami, Mason was accompanied by Len Povey of the CAA. The new Stinson is powered by a 285-hp. engine and equipped with radio for which Mason has been granted a license by the Federal Communications Commission.

Fire Ruins Hangar, 4 Planes

Fire believed caused by defective wiring destroyed a hangar and four planes at the Moline, Ill., airport recently, the loss being estimated at \$8,000. One plane was the property of the Rev. J. B. Gulemans, a founder of the Moline airfield, while the other three were property of Boyce and Gales Flying Service.

Adams Heads Atlanta NAA

Dr. Fraser L. Adams Jr. recently was elected president of the Aero Club of Atlanta, Ga., local NAA chapter, to succeed William K. Jenkins. Additional officers are Lt. W. F. Underwood, 1st v. p.; Mrs. Charlotte Frye, 2nd v. p.; Thomas B. Sutton, secy.; Henry Heinz Jr., treas., and Roy J. Edge, sergeant-at-arms.

Pratt & Whitney Appointments



Recent appointments made by Pratt & Whitney Aircraft Div. of United Aircraft Corp., East Hartford, Conn., include E. M. Lester, left, as P&W representative at Wright Field, Dayton, O.; A. H. Marshall, center, as chief of

sales engineering, and William P. Gwinn, right, as assistant sales manager. Hubert A. Gosselin, appointed at the same time as sales manager of the company, was pictured in AMERICAN AVIATION, Jan. 1.

LOOKING FORWARD

The record accomplished by domestic airlines in 1939 is outstanding . . . and represents a real stimulus to attain even greater results during the New Year.

United Air Lines enters 1940 with an expansion program well under way to permit proper development of the rapidly increasing volume of new air traffic. Nearly a million dollars worth of new equipment will go into service over United's Main Line Airway during the next few months. Qualified ground and air personnel are being added. Research work is being carried out on even broader lines.

In every way United is striving to contribute new records for 1940.

UNITED AIR LINES



C. A. A. ACTIONS

(Pilot Certificates, Letters of Authority, Publications, Miscellaneous. For Airline Regulation, See Air Carrier Record. Serial Numbers of Orders and Dates in Parentheses.)

Mechanic Certificate Suspended

For "falsely certifying as to the airworthiness of an aircraft," the CAA has suspended for 30 days from Dec. 23 aircraft and aircraft engine mechanic certificate No. 3870, held by R. S. Johnson, Houston, Tex. (Dec. 28, 317).

Pilots

Suspensions

Walter E. Dicke, Carthage, Mo., private pilot certificate No. 49591 suspended for an additional 30 days from Dec. 16. (Dec. 18, 303).

Revocations

Adolph P. Netzel, Pontiac, Mich., private pilot certificate No. 35276 revoked for piloting an aircraft while carrying passengers for hire, in violation of the terms of his private pilot certificate and the Civil Air Regulations. (Dec. 22, 310).

Robert Puvoel, student pilot certificate No. 79732 revoked for piloting an aircraft at an altitude of less than 1,000 ft. over an open-air assembly of persons, and other violations of the CAR. (Dec. 27, 312).

Civil Penalties

The CAA (Dec. 22, 307) accepted offers in compromise of civil penalties incurred for violations of the Civil Aeronautics Act and the CAR as follows: Charles William Albrecht, Edwardsville, Ill., for permitting his aircraft to be flown on a civil airway by a person other than one possessed of a pilot certificate valid for the operation involved, and other violations, \$75.00; A. L. Jackson, St. Joseph, Mo., for permitting his aircraft to be flown on a civil airway by a person other than one possessed of a pilot certificate valid for the operation involved, and other violations, \$50.00; Raymond Lee Kidd, New Orleans, La., for piloting an aircraft, while possessed of a temporary solo pilot certificate, on a civil airway, carrying a person other than a certificated instructor actually giving instruction, \$100.00; George E. Peterson, Nashville, Tenn., for piloting an aircraft on a civil airway although said aircraft had been damaged in an accident and had not been re-rated as to airworthiness, \$25.00.

Referred to Dept. of Justice

The following case (Jan. 2, 318) was referred to the Attorney General for judicial action for certain violations of the Civil Aeronautics Authority and the CAR: T. N. Church, Fayetteville, N. C., for piloting an aircraft on a civil airway while not possessed of a valid pilot certificate and for failure to report an aircraft accident.

LA Sportplane Planned

Interstate Aircraft & Engineering Corp., Los Angeles, is working on plans for a small tubular spar and fabric sportplane designed by Ted Woolsey, aeronautics professor at Frank Wiggins Trade School. At present, the project is still in the engineering stage, and nothing definite will be announced for about a month.

Ft. Worth Firm Appointed

Ft. Worth, Tex.—Aircraft Sales Co. recently incorporated here for the sale of airplanes, parts and accessories, has been appointed distributor for Stinson planes. Offices of the company are in the administration building at Municipal Airport. Officers are Leslie H. Bowman, pres.; O. H. Mitchell, v. p., and I. R. Moore, secy.-treas.

The Pilot's Letter Home

The shadows are the sharpest where
The sunlight brightest lies,
The clouds are whitest when they float
Across the bluest skies,
And you are nearest, heart o' mine,
Though I can only pray
From this far field by Magineau
God keep you safe today.

The sweetest peace is not the peace
Devoid of pain or strife,
But peace men have who also have
Love anchored in their life.
So though my wings drum up the dawn
In lands far o'er the sea,
I live in peace by Magineau
Since you are dear to me.

And if it be I come no more
To walk as others do,
Dear heart look up and knowing wings
Are o'er you in the blue.
Know that I circle in the sun
So long as there be sky,
For love is peace by Magineau
God keep you safe for aye!

GILL ROBB WILSON.

Airline Personnel

T. E. Aneberg, United passenger agent, has been transferred from Newark to Denver, and R. Andrews, steward at Denver, has been promoted to passenger agent.

Capt. J. H. Brown, pilot; M. Hadley, secretary, and R. W. Major, lineman, all of American, recently were awarded diamond pins at the completion of 10 years service for the line.

Capt. Joseph Chase has been transferred by Pan Am from Miami, in the eastern division, to California, in the western division.

New members of EAL's Atlanta personnel are Pilots C. J. Anderson and J. D. Payne; F. A. Norwood, transportation agent; R. J. Litteer, operations, transferred from Indianapolis; Jake Hoffman, field traffic, and Charlie Scraggs, former mechanic at Miami, transferred back to Atlanta. Replacing Litteer at Indianapolis is W. C. Strickland, former station manager at Beaumont, who was succeeded by C. W. "Tip" Barnes, transferred from Chicago.

New addition to TWA's radio department at Boulder City is Leonard LaFrank.

C. R. Hummer, United passenger agent at Denver, has been transferred to Chicago.

Division Engineer Humphrey W. Toomey, of PAA's eastern division in Miami, has announced appointment of three new junior engineers—Robert R. Bennett, Charles W. Manly and John J. Tigert.

H. E. Midkiff, formerly with TWA and WAE, and Jimmy Fields are new additions to Eastern's radio room in Atlanta.

TWA's Radio Operator Kenneth McGaha, formerly of Chicago, is now a member of the line's Dayton staff. Bill Farmer was transferred from Dayton to Chicago.

United has assigned 10 passenger agents to New York Municipal Airport at North Beach: J. A. Wright, former station manager at Camden, is chief passenger agent, and his first assistant is S. T. McDermott, formerly at Newark; R. J. Bennett, B. Anderson, J. Stebbins and H. R. Wells are passenger agents transferred from Newark. W. Leonard, P. Nofsker, F. M. Ludlow and F. O. Maussner have been promoted from stewards to passenger agents at North Beach.

Recent additions to personnel of Pan Am's engineering department at Miami include J. Michie and M. Avant.

Charlie Smith, of EAL, recently transferred from Washington to Newark. New addition to the line's traffic personnel at Washington is Charles B. Holmes Jr. Doug Robin transferred from St. Vanderbilt Ave. to Eastern headquarters in Washington. Other new WA additions are John Moriarty and Charles Cox Jr.

George Bell and B. Rathbone, from Pittsburgh and Kansas City, respectively, are TWA passenger agents at Newark. Kenny Hart transferred from Pittsburgh to manage TWA's Newark station. Eddie Middleton is now chief passenger agent at Newark.

Formerly employed at San Antonio's municipal airport, Lester Howe has been added to EAL's maintenance department at that city.

New employee in TWA's Chicago office is H. Walbaum.

D. T. Austin and Gil Henry are new United passenger agents at Akron, Austin, having been promoted from Newark and Henry having been promoted from steward at Denver.

New arrivals at Port of Spain in Pan Am's eastern division are Junior Pilot Robert L. Kimball and David Gerald Desmond.

Morris Hart is a new member of the EAL family at Brownsville. Hart's sister is employed by PAA at Brownsville.

John Bailey, of TWA's staff at Chicago, has been elected vice president of the Airliners Club of Chicago for 1940.

New member of city traffic personnel at New Orleans for Eastern is Gene Beville. EAL's staff at Memphis recently welcomed N. H. "Binks" Mathey from field traffic, Newark, as new field and traffic manager.

John Shields, chief passenger agent for United at Newark, has become acting station manager at Newark, succeeding W. H. Maxwell, who has become station manager at New York Municipal Airport.

Leon Williams, Frank Bosy, Charles Darcy, Dyer Higgins, William Thomas and Alfonso Stiffa, graduates of Roosevelt Aviation School, have been placed with Pan Am at Baltimore.

From operations work in Atlanta, Jack Navarro has joined EAL's personnel at Charlotte. Newcomers to Eastern's Camden family are James Townsend, from Newark, and J. P. "Skip" Lukens, who will fly the EAL autogiro Camden Airport-Philadelphia PO to relieve Capt. John Miller.

Edward Foss of Portland, Me., has been engaged by UAL as co-pilot.

Russell W. Thaw, who has piloted Harold S. Vanderbilt's Lockheed 14 for the last few years, has been employed by EAL.

Glen J. Stewart, Eastern employee at Atlanta, has been transferred to Corpus Christi as transportation agent.

New employees in United's dispatch office at Chicago are Fred Clark, formerly of Cheyenne; Johnny Champion, Al Odell and Bob Blackwell. New to the meteorology department is Ray Warren. Other United additions at Chicago are Harry Reid and Carl Julien.

From operations at Atlanta via operations at Charlotte went Harry C. Hutchens recently to swell EAL's staff of transportation agents at Greenville.

Recent United transfers from Chicago include Dispatch Clerk Bob Meisse and Fred Ludlow, to Newark, and Leo Stenzinger, former dispatch clerk, to North Platte.

Louis B. Purchase of Richmond Hill, L. I., N. Y., has been employed as pilot with EAL. In 1937 he started Purchase Flying Service Inc. at Roosevelt Field. He will be stationed at Newark.

Ceco President Elected

Charles W. Deeds, president of Chandler-Evans Corp., South Meriden, Conn., aircraft accessory manufacturer, is one of three newly elected directors of Niles-Bement-Pond Co.



COMING TO NEW YORK?

STOP AT "A GREAT HOTEL"

*1 block from Penn Station and Empire State Building
B. & O. buses stop at our door*

LARGE, BEAUTIFUL ROOMS WITH PRIVATE BATHS
Single from \$3 daily Double from \$4.50 daily

HOTEL McALPIN

BROADWAY at 34th STREET, NEW YORK

Under KNOTT Management **JOHN J. WOELFLE, Manager**

Along the Line

AMERICAN AIRLINES—In 1939 AA transported 541,757 revenue passengers, an increase of 51.2% over '38 when 358,295 were carried. This is more passengers than any airline in the world has ever carried in one year in scheduled service. Revenue passenger miles flown totaled 207,360,215, an increase of 47.2% over the 140,869,290 in '38.

In December the line carried 53,093 revenue passengers, an increase of 1% over November, and of 83.4% over Dec. 1938 when the total was 28,947. Revenue passenger miles flown in December reached 20,672,154, an increase of 3.2% over November, when 20,034,677 were flown and of 74.7% over Dec. 1938, when 11,835,145 were flown.

BRANIFF AIRWAYS—November passenger traffic showed a 28.92% increase over Nov. 1938. Revenue passenger miles were 1,822,814 in Nov. 1939, compared with 1,413,864 in '38.

For 11 months ended Nov. 30, 1939, line flew 17,812,885 revenue passenger miles, a 46.6% increase over 1938's corresponding period. Total of 5,692 passengers were carried in November, a 39.3% gain over Nov. 1938. For 1939's 11 months, Braniff carried 56,013 passengers, an increase of 59.8%.

CANADIAN COLONIAL AIRWAYS—Company has signed an agreement with Air Line Mechanics Association, International, according to J. H. Foster, ALMA president. Contract, effective Jan. 1, establishes rules governing working conditions and rates of pay. F. L. Duncan, CCA vice-president, and B. T. Dykes, superintendent of maintenance, represented the line in negotiations.

CHICAGO & SOUTHERN AIR LINES

Line flew 9,244,000 revenue passenger miles in '39 as compared with 6,895,319 during '38, a 34.1% gain. Total passengers grew from 16,628 in '38 to 23,500 in '39, a 41.4% gain. Mail pound miles flown in '39 increased 42.3%—191,633,000 in '39 and 134,688,391 in '38. Express pound miles increased 36% during the period.

D. D. Walker, vice-president, pointed out that there were no accidents, no passenger or crew member fatalities during '39 on C & S routes. In Nov. 1939, total passengers carried showed a decrease of 2% under Oct. 1939 and 43.2% increase over Nov. 1938. Revenue passenger miles—916,698 in Nov. 1939; 836,082 in Oct. 1939; 628,492 in Nov. 1938.

During the first 11 months of 1939: Revenue passenger miles—8,319,192 in 1939; 6,323,357 in 1938's corresponding period; gain, 31.6%. Revenue passengers—21,116 in '39; 16,623; gain, 27%.

Carleton Putnam, C & S president, predicted a 60% increase in passenger travel on the line for 1940, due in part to the introduction of Douglas DC-3's.

EASTERN AIR LINES—In the first 11 months of 1939 revenue passenger miles totaled 91,320,952; 64,592,966 in '38; gain, 41%. Revenue passengers were 208,286 in '39; 148,312 in '38; gain, 40%. Mail poundage increased from 2,845,703 in 1938's 11-month period to 3,554,928 in '39, a gain of 25%. Air

express volume increased from 665,594 lbs. to 849,286 lbs., a 28% increase.

December figures: Revenue passenger miles represented an estimated 70% increase over Dec. 1938; revenue passengers increased an estimated 65% and revenue plane miles increased 50%. December was the first month in the company's history that more than one million route miles were flown. December also was the first month in which more than 10 million passenger miles were flown.

An unprecedented air passenger exodus from New York to Miami was reported by EAL on Dec. 23 when for the first time in EAL's history, five extra sections of the Caribbean Flyer were dispatched from Newark Airport.

MID-CONTINENT AIRLINES—Passenger revenue increased 42%, mail revenue increased 24% and express revenue increased 16% over 1938.

PAN AMERICAN AIRWAYS—All records for international air travel in one day between the U. S. and Latin America were exceeded Dec. 22 when PAA carried 302 passengers in and out of Miami on foreign routes. Volume more than doubled the 134 total passing through Pan American International Airport, Dinner Key Base, on Dec. 22, 1938.

An increase in service between Miami and Havana and Nassau was announced by Pan Am on Dec. 28, two weeks earlier than ever before. Clippers formerly making 10 trips daily between Miami and Havana were expected to be increased to 12 or 14 later in the season. Daily service to the Bahamas was expected to be augmented later.

PENNSYLVANIA-CENTRAL AIRLINES—Traffic report for 1939: Revenue passengers, 122,303; 85,464 in '38; gain, 43.07%. Revenue passenger miles, 21,192,904; 15,678,677 in '38; gain, 35.17%. December traffic was the highest ever attained by PCA for that month. Total of 10,550 revenue passengers were carried as against 6,691 in Dec. 1938, a 58% increase.

TRANS-CONTINENTAL & WESTERN AIR—Company reported largest November traffic in its history. Revenue passenger miles totaled 9,011,049, an increase of 56.5% over Nov. 1938 and 5.2% over Nov. 1936, the highest previous November in the line's history. "The report shows the 10th straight month of seasonal increase," V. F. Conroy, vice-president-traffic, said. "While there was a drop of about 18% from the all-time traffic record TWA established in October, the November traffic load still is above the average seasonal decline. Conroy predicted the "best winter in airline history" on the basis of November traffic loads.

Mail and express reports showed similar increases over 1938, with 237,055,792 pound miles of mail and 75,911,081 pound miles of express flown during November. This represents increases of 5.8% and 45.8%, respectively, over Nov. 1938.

UNITED AIR LINES—A new international record for airline operations was attained by United by completing its 150,000,000th mile of scheduled flying over its New York-Chicago-Pacific Coast and Seattle-San Diego airways. It was announced in December. Approximately 68,000,000 miles were flown at night.

Marking the first time that schedules have been increased before the Spring season, a fourth daily non-stop flight between New York and Chicago, leaving NY at 9 a.m. and arriving in Chicago at 1:10 p.m. and leaving Chicago at 9 a.m. for arrival in NY at 1:50 p.m., was inaugurated by United on Jan. 10. Harold Cray, vice-president-traffic, announced. New schedule provides the most frequent non-stop service in history between NY and Chicago, raising UAL's total to 10 daily.

During the first 11 months of 1939, United gained 34.1% in revenue passenger miles over '38's same period. Line flew 136,802,443, contrasted with 101,991,222 in '38. Mail and express showed a gain of 12.2%.

WESTERN AIR EXPRESS—Total revenue passenger mileage for November showed a 48.2% increase over Nov. 1938. Flying 897,802 revenue passenger miles in '39 as compared with 605,802 during Nov. 1938, WAE set a mark of six consecutive record-breaking months.

Air Base Ready by Apr. 1

The Coast Guard has reported that the new air base at Elizabeth City, N. J., is expected to be ready for occupancy by Apr. 1. New station will cover 294 acres, with four concrete runways each 100 by 3,000 ft., hangar, barracks, seaplane ramp and crash boat shelter.

Travel Manager



H. B. ("Huck") Longfellow, European travel manager for United Air Lines with headquarters in London, has sailed for Australia to establish a traffic office for United in Sydney.

Nine Papers on Aviation Slated for SAE Meeting

The following papers dealing with subjects of aviation are scheduled for presentation at the annual meeting of the Society of Automotive Engineers at the Book-Cadillac Hotel, Detroit, Jan. 15 to 19:

"Rudder Control Problems on Four-Engined Airplanes," by Clarence L. Johnson, Lockheed Aircraft Corp.; "Aluminum Aircraft Fuel Tanks," by E. H. Dix Jr. and Dr. R. B. Mears, Aluminum Company of America; "Air Forces on Radial Air-Cooled Engine Cowling as Determined from Pressure Distribution Tests," by R. R. Higginbotham, Republic Aviation Corp.; "The Correlation of Wind Tunnel and Flight Test Results," by W. W. Symington Jr., Glenn L. Martin Co.; "Why a Ceramic Spark Plug in Aviation?" by A. L. Beall, Wright Aeronautical Corp.

"The Shortcomings of Mica as an Insulator Material in Aviation Spark Plugs," by Val Cronstedt, Pratt & Whitney Aircraft Div.; "Ceramic Insulators for Spark Plugs," by F. H. Riddle, Ceramic Div., Champion Spark Plug Co.; "Availability and Characteristics of Safety Fuels," by Robert E. Ellis and W. J. Sweeney, Standard Oil Development Co.; "The Performance of Modern Aircraft Diesels," by Paul H. Wilkinson, consulting engineer.

New Jersey Elects Copsey

Lt. Col. Robert L. Copsey, air officer of the New Jersey National Guard, recently was elected chairman of the state aviation commission. Other officers elected are Norman Kern, vice-chairman, and William D. Dana, secretary. Remaining members are William Markheim and Lt. Richard Aldworth, superintendent of Newark Airport. Maj. Gill Robb Wilson, New Jersey's director of aviation, is appointed by the governor.

Lear Moves Facilities and Changes Co. Name

Coincident with official announcement of the moving of its facilities from Roosevelt Field, Mineola, N. Y., to Municipal Airport, Dayton, O., Lear Developments has issued notification that its new name is Lear Avia. Company has moved its main factories and research laboratories to a new plant at Dayton, but will retain its building at Roosevelt Field as headquarters for its Atlantic sales and service division. (See AMERICAN AVIATION, Nov. 1.)

Practically the entire personnel of Lear Avia has been transferred to Dayton. Supplementing its Atlantic Division, the company has now established a Pacific sales and service division at Municipal Airport, Inglewood, Cal., and also a branch at Beech Airport, Wichita, Kan.

As part of its 1940 program to set up service bases within a 200-mile radius of any point in the U. S., Lear Avia's sales department has announced appointment of the following new distributors:

Supply Division Inc., St. Louis, Mo.; Aircraft Sales Corp., Ft. Worth, Tex.; E. W. Wiggins, Boston, Mass., and Providence, R. I.; South Eastern Communications Corp., Charlotte, N. C., and Orlando, Fla.; Walz Corp., Camden, N. J.; Aviation Supply Corp., Atlanta, Ga.; Radio Inc., Tulsa, Okla.; Aircraft Instrument Service Inc., Detroit, Mich.

15 Securities Ordered

American Aircraft Co., Long Beach, Cal., recently announced orders for 15 of its security aircraft. It is understood refinancing is in progress, to be announced shortly.

Aero Entering Aviation

J. C. Markey, president of Aero Equipment Corp., Bryan, O., announced recently that the company soon will enter the aircraft products manufacturing field (AMERICAN AVIATION, Jan. 1).

On Jan. 3 the company declared that "plans are shaping up very fast" with production of some products expected at an early date.



Advertisement



No Wonder They Look Happy

—because the next day after this picture was taken, these men answered one of many repeat calls for Aero ITI-trained mechanics from a famous builder of flying boats and other aircraft for the Army and Navy. This well-pleased employer of Aero ITI graduates—along with many other aircraft builders and airlines—has learned that Aero ITI students receive a thorough, practical training...that when they assume their duties they are competent, dependable craftsmen, mechanics, and engineers. Over 1000 Aero ITI-trained men have entered the industry in the last 21 months. Information on school and courses sent on request. Aero Industries Technical Institute, 5238 W. San Fernando Road, Los Angeles, Calif.

307 Inspectors



George Haldeman, left, senior aeronautical engineer inspector of the CAA, and A. M. Alcorn, CAA aeronautical engineering inspector, in the control room of the Boeing 307 Stratoliner which recently underwent official government tests at Seattle.

The CAA flight test board which took charge of the 307 consists of R. D. Bedinger, regional supervisor, as chairman; Haldeman, executive member; Alcorn; B. M. Jacobs, senior air carrier inspector; O. A. Rosto, air carrier maintenance inspector; Harry Sine and Harold Phillips, aircraft inspectors, and F. Hammerberg, aeronautical engineer of the aircraft airworthiness section.

Foreign Missions Inspect New Ship

Curtiss-Wright Corp. on Jan. 4 confirmed demonstration of the Curtiss Falcon 22 before a number of foreign missions including Canadian government officials. A large number of the new all-metal, two-place advanced combat trainers are on order by an unnamed foreign government. Tests on the first plane recently were completed at St. Louis, Mo., by the corporation's airplane division at that place.

Wing of the Falcon is full cantilever, all-metal with multiple spars, having an internal structure of longitudinal stiffeners, shear spars, and fore and aft bulkheads riveted to the skin. Wing is in five separate units.

Fuselage is of semi-monocoque construction covered with aluminum alloy stressed skin riveted to and reinforced by transverse bulkheads and longitudinal stringers. The unit is riveted to the center panel of the wing by means of two attachment angles.



The cockpit floor is the upper surface of the wing which is continuous across the power portion of the fuselage.

Kellett Action Approved

Stockholders of Kellett Autogiro Corp., Philadelphia, recently approved action of the board of directors in changing the date of the close of the corporation's fiscal year from Oct. 31 to Dec. 31 annually. Annual meeting was adjourned to Feb. 23, when the consolidated 14-month figures for the revised 1938-39 period will be received. All directors of the corporation were re-elected.

CURTISS TESTS FIRST FALCON 22

Advanced Combat Trainer, On Order By Foreign Govt., is Fast and Highly Maneuverable

The first of a large number of new Curtiss Falcon 22's, all-metal, two-place advanced combat trainer and all-purpose plane constructed by the Curtiss-Wright Corp. for an unnamed foreign government, has proved to be "unusually fast and highly maneuverable" during flight tests, according to C. W. France, vice-president and general manager of the St. Louis Airplane Div. of the organization.

Designed specifically for the training of "fighting pilots," the Falcon 22 is smaller than the Curtiss Hawk 75 pursuit type which the French Air Force has been operating, and is said to incorporate the latest aerodynamic and structural advances.

The Falcon has a maximum speed of 215 mph. at critical altitudes; a cruising speed of 195 mph. at critical altitude; climbs 4,920 ft. in 2.9 min. and 9,850 ft. in 6.4 min.; has a service ceiling of 25,900 ft.; a cruising range with normal fuel supply, at critical altitude, of 518 mi., and has a take-off and landing run of 480 ft.

New plane is powered by a Wright Whirlwind engine rated at 420 hp. at 1,400 ft., and is equipped with a two-blade, two-position, controllable pitch propeller. Among other features is a retractable landing gear. Front cockpit is equipped for the pilot while the rear cockpit is prepared for use by a gunner-observer, instructor or secondary pilot.

Square D, Kollsman Merged

Kollsman Instrument Co. Inc., as of Dec. 30, 1939, became Kollsman Instrument Div. of Square D Co. As vice-president of the Square D Co., Paul Kollsman remains at the head of his organization. Square D stockholders at a recent meeting in Detroit approved a merger plan whereby the company acquired the Kollsman company and authorized a new issue of 5% cumulative convertible preferred stock which, together with Square D common stock, will provide the shares to be issued in connection with the acquisition. Square D's board of directors on Dec. 7 approved the merger.

Martin Co. Releases Fast Multi-Purpose 167W for Export

A new twin-motor ship, similar to the Martin 167F and designated as the Martin 167W, to be used as a high-speed bomber for long-range reconnaissance work, for ground attack or as a twin-engine fighter, has been released for export, Glenn L. Martin, president of Glenn L. Martin Co., Baltimore, Md., has announced.

While the company is producing 167F's for the French government, it also has completed the 167W which is capable of carrying a maximum bomb load of 1,250 lbs. at a speed of 274 mph. at sea level, reaching a speed of 304 mph. at critical altitudes.

Powered by two Pratt & Whitney R-1830 engines and equipped with three-blade, constant-speed full feathering propellers, the 167W, as a high-speed bomber, carries its bomb load completely enclosed within the fuselage.

With installation of a bomb bay fuel tank and a camera, the ship becomes a long-range, high-speed reconnaissance plane. It is rendered an effective instrument for ground attack missions through provision for its four fixed guns in wings and spaces for loading small fragmentation bombs in chutes in the bomb bay.

The 167W likewise is effective as a speedy fighter.

The new Martin model has a wing spread of 61 ft. 4 in. and an overall length of 46 ft. 8 in. Retractable landing gear has been provided with both power and manual controls.

Design of the new ship provides for incorporation of four .30-caliber fixed machine guns, two in each wing, outboard of the propeller disc. They can be fired simultaneously or separately by means of switches located on the rim of the pilot's control wheel. In addition, two flexible .30 caliber machine guns may be mounted, for protection to the rear, above and below the fuselage.

Nacelles have been placed about mid-way between the sides of the fuselage and the outboard end of the center section. Each nacelle with its engine may be removed as a unit when the cowl is removed. Cowling is of the NACA ring type with controllable flaps at the trailing edge, both nacelle and cowling being attached by means of quickly operable flush type fasteners.

Roanoke Operator Change

W. S. Fraser, radio operator at the CAA's airways communication station at Roanoke (Va.) Municipal Airport for four years, recently was transferred to Williamsport, Pa. He was succeeded by George E. Rowland of Mercer, Pa. Stephen E. Lucia was added to the staff of the Roanoke station.

Western Electric Co. Announces Terrain Clearance Indicator

The commercial counterpart of the experimental terrain clearance indicator first demonstrated in Oct. 1938, and developed by Bell Telephone Laboratories has been announced by Western Electric Co. Known as the 1A Radio Altimeter, the instrument is designed to give airplane pilots constant indication of their height above the ground and as such is generally recognized as a major contribution to air navigation.

In darkness or fog, especially, does the radio altimeter contribute to safe air travel, since the pilot using it is always aware of his height, not above sea level, but above the ground immediately beneath him. By maintaining a safe predetermined terrain clearance, the pilot can minimize greatly the danger of crashing because of poor visibility or unfamiliarity with the route.

Involved in operation of the 1A Altimeter are transmission of a radio signal from the aircraft, reception of the signal as reflected from the earth, measurement of the elapsed time between transmission and reception, and the translation of this interval into a direct reading of the altitude in feet as shown on a meter. Use of ultra high frequency eliminates static interference. The new instrument, consisting of a transmitter, modulator or "wobbler," receiver, meter and two dipole antennas, weighs less than 50 pounds.

The 167W—A Three-Purpose Ship



Representatives of the Army Air Corps and company test pilots have praised the flying characteristics and ease of maneuverability of the 167W, recently released for export by Glenn L. Martin Co., Baltimore, Md. The 167W is similar to the Martin 167F, now under construction for the French government at the Martin plant.

The U. S. GRANT HOTEL in San Diego



Largest-finest
the best of everything

Rates

\$180 to \$300 bath detached
\$250 to \$700 with bath

featuring the
RENDEZVOUS
COFFEE SHOP • COCKTAIL LOUNGE
DANCETTE • PALM GARDEN

DIRECT GARAGE ENTRANCE
3rd and C Sts.
Broadway on the Plaza
San Diego, California

Effect of Embargo Repeal Seen in 123% Increase of Aero Exports

Reflecting effect of the arms embargo repeal in early November, aeronautical exports for that month increased 123% over October, from \$3,024,668 to \$6,759,648 according to preliminary figures of the automotive-aeronautics trade division, Dept. of Commerce. The November figure is 63% above that for November of the previous year and 29% higher than the November, 1937 total.

Going abroad during the month were 62 landplanes worth \$3,842,615; 143 engines valued at \$1,209,709; parachutes and parts for \$25,736; parts and accessories for engines, \$259,379; instruments and parts, \$213,909; other parts and accessories, \$1,208,300.

France, the Netherlands, and the United Kingdom, the leading importers of U. S. aeronautical products in October, continued to head the list of purchasers, each country, moreover, more than doubling its October total. France, spender of \$613,285 for parts and accessories during the preceding month, purchased with repeal of the embargo 19 planes for \$2,094,139 and 38 engines for \$509,404. Ten planes went to the Netherlands for \$595,300, during November, and 33 engines for \$165,046. The United Kingdom's purchases included four planes worth \$347,200 and four engines valued at

\$43,052. Total October figures for the Netherlands and the United Kingdom were \$392,983 and \$348,543, respectively.

The total for 11 months of 1939 now stands at \$88,022,837, which is 40% over that for the same period of 1938, 29% over the total for 1937, and 123% over the entire 1937 figure. With continued increase in aeronautical exports to warring countries, it is not unlikely that the December sum may send the 1939 value up near the \$100,000,000 mark.

The following list includes the 23 powers which imported U. S. aeronautical products valued at \$10,000 or more in November.

France	\$2,690,969
Netherlands	950,833
United Kingdom	828,063
Canada	623,913
China	513,742
Argentina	262,152
Brazil	132,759
Turkey	123,954
Netherlands Indies	74,139
Switzerland	69,230
Japan	63,641
Sweden	57,444
Honduras	56,397
Mexico	48,268
Finland	43,186
Portugal	33,087
Slam	29,526
Australia	25,200
Peru	22,973
Hong Kong	18,033
Greece	14,317
Colombia	11,270
Venezuela	10,823

Incorporations

Delaware—Cauthen Aircraft Corp.; to deal in airships; \$100,000. M. M. Lucey, M. K. S. Lucey, A. E. Ross, Wilmington. (Colonial Charter Co.)
 Delaware—Geodetic Engineering Corp.; to deal in airplanes and aircraft; \$30,000 par \$60 and 2,000 shares, no par value. Edwin E. Lindgren, John E. Cogrove, David H. Jackman, New York. (United States Corporation Co.)

Delaware—Goodyear Aircraft Corp.; to deal in form of aircraft; 1,000 shares, no par value. E. F. Lewis, L. H. Hermon, Walter Lenz, Wilmington. (Corporation Trust Co.)

Delaware—Seaboard Aviation Corp.; to deal in aircraft; \$20,000 par \$10. D. B. Hilliard, H. W. Kennedy Jr., R. M. Harlan, Wilmington. (Corporation Fiscal Co. Inc.)

Delaware—State Air Lines Inc.; to deal in air service; \$50,000 par \$1. Francis C. Carmody, John H. Norris, New York; William N. Mason, Madison, N. J. (United States Corporation Co.)
 Massachusetts—Allan H. Lockhead Aero Industries Inc., Boston; to manufacture and sell aircraft and accessories; capital \$100,000. Incorporators: Allan H. Lockhead, Oakland, Cal.; Paul Bertelsen, Beverly, Mass.; Ray Henry, Belmont, Mass.

New Jersey—Summit Aeronautical Corp., Bendix; \$25,000 preferred, \$1,000 common. Agent, Monroe V. D. Towt.

New Mexico—New Mexico Pilots Association, Albuquerque; nonprofit organization to promote aviation in New Mexico. Incorporators and officers: Bertha Bailey, pres.; C. H. Hagen, v. p.; Mrs. Carl Darnall, secy.-treas.; trustees, Alice Stine, Melvin McGee, Riley Welch, John Glom.

New York—Academy of Aeronautics Inc., Kings; aircraft; Conroy & Hardy, 32 Court St., Brooklyn; 2,500 shares, no par value.

Oregon—Airways Flying Club, Portland; listed as a charitable organization to provide flying instruction for members in the interest of national defense. Collins A. Reed, Albert Anderson and Fred W. Vincent Jr. Filed by Donald A. Schaffer, attorney, Portland.

Texas—Frenchy's Aircraft Service Inc., Ft. Worth; garage; capital stock \$3,000. Incorporators: Leon P. French, John W. Harrison Jr., John W. Harrison Sr.

Koch, Yankey and Winters Elected to Beech Positions

Frederick Koch of Winkler-Koch Engineering Co. recently was elected a director of Beech Aircraft Corp., Wichita, Kan. C. G. Yankey was elected vice-president and L. Winters assistant secretary of the company.

2 Wright Promotions



Promotion of Burnham Adams (right), west coast representative of Wright Aeronautical Corp., to the managership of the organization's newly established selling division of the sales and service department; and the appointment of Paul Youngs (left), sales engineer, as his successor, was announced on Jan. 5 by George Chapline, vice-president in charge of sales for the Wright corporation, Paterson, N. J.

McDonnell Personnel Named

Election of Ivan H. Driggs as vice-president in charge of engineering and as a director of McDonnell Aircraft Corp., Robertson, Mo., was announced recently by J. S. McDonnell, president of the company. The company also revealed appointment of Lawrence L. Waite and Garrett C. Covington as assistant chief engineers.

Seventeen Grummans Sold

Recent sale of 17 Grumman model G-21 aircraft, representing some \$1,500,000, is reported by Gillies Aviation Corp., Bethpage, N. Y., Grumman sales agent. Twelve G-21B flying boats went to the Portugal government for coastal patrol duty and two ships to KLM of Holland for use on Dutch East Indies routes. Private purchasers of the G-21A amphibian include McIntyre Porcupine Mines, Ltd. of Toronto, Ont.; Gulf Oil Corp. of Pittsburgh, Pa., and Frank V. duPont of Wilmington, Del.

1st Bell FM-1 Delivered

First delivery of the War Dept.'s order from Bell Aircraft Corp., Buffalo, N. Y., for 13 FM-1 fighters has been received and is undergoing tests at Langley Field, Va. Since the order is experimental, testing of the first ship at NACA laboratories is considered routine, following several trials at Wright Field. Bell also is in production on 80 P-39 pursuit ships for the department, first deliveries of which are not expected for several months.

CLASSIFIED ADS

7c per word—minimum charge \$1.00—Payable in advance

Aviation Institute of New York

24-13 Bridge Plaza No. Long Island City

C. A. A. recognized, aircraft and engine courses. Located 10 minutes from New York's North Beach Airport

DIVISION of FRANK AMBROSE, Inc.

Dealers & Exporters

Airplanes, Engines & Accessories

HELP WANTED, MALE

Man thoroughly familiar with all forms of aircraft corporate and cost accounting and able to act as Comptroller. Small growing aircraft concern. State qualifications.—American Aviation Box 185.

WANTED—Experienced Sales and Installation Engineer—aircraft engines. Preferably person well known in aircraft industry and Army and Navy. Only those well qualified should apply. Give full details. Box 186 American Aviation.

WANTED—Experienced Aeronautical Engineer, knowledge of plywood structures and resins essential. Give full details. Box 187 American Aviation.

58 Menasco Engines

Destined for China

Order for 58 airplane engines and spare parts, totaling \$144,173.72, for installation in Ryan training planes destined for China was given Menasco Manufacturing Co., Los Angeles, by Ryan Aeronautical Co. of San Diego, on Dec. 26. Declared to be the largest single order ever received by Menasco, A. E. Shelton, president, said the backlog of the company's aviation division is now in excess of \$300,000.

Delivery of the engines, some of which will be gun synchronized for machine gun training, is scheduled to start in January with completion expected early in April. These engines will be the first Menasco powerplants used in China, Shelton stated.

Sweden to Buy 2 U. S. Transports

The Swedish Air Transportation Co., according to the Commerce Dept.'s automotive-aeronautics trade division, has announced that it will buy two 21-passenger transport planes from a U. S. manufacturer.

DON'T GUESS
about altitude in thick
weather! With the Western
Electric Absolute Altimeter
you'll know your exact
terrain clearance at
every moment.

Western Electric
AIRCRAFT RADIO SYSTEMS

ADVERTISING

Aeronautical Corporation of America, Cincinnati, O., has announced that as of Feb. 1940, it has appointed Key Advertising Co., Cincinnati, as its advertising agency. Account formerly was serviced by McDaniel, Fisher and Spelman, Akron, O.

Curtiss-Wright Technical Institute, Glendale, Cal., has announced appointment of Ned Ellsworth, Weldon, Glendale, as advertising agent, succeeding Essig Co., Los Angeles, Cal.

Aero Patents

2,174,792: Manufacture of Propellers. Glen T. Lampton, Williamsport, Pa., assignor to Aviation Manufacturing Corp., Chicago, Ill.

2,174,804: Flight Meter. John Francis Neville, San Francisco, Cal., assignor, by mesne assignments, to Fair-Way Co. 2,174,946: Autorotative-Winged Aircraft. James G. Ray, Harbor, Harold F. Pitcairn, Bryn Athyn, and Agnew E. Larsen, Huntingdon Valley, Pa., assignors, by mesne assignments, to Autogiro Company of America.

2,174,981: Connecting Rod Bearing Assembly for Internal Combustion Engines. Benjamin Kahn, New York, N. Y., assignor to Kinetic Cycle Research Corp., New York.

2,175,143: Gyroscopic Apparatus. Ernst-August Cornelius, Berlin-Charlottenburg, Germany, assignor to Askania-Werke A. G.

2,175,186: Ground Speed and Drift Meter. Uzal G. Ent, Ft. Leavenworth, Kan.

2,175,229: Parachute. Peter J. Swoford, Arlington, Tex.

2,175,477: Parachute Device. James Mathews McEntegart, Ardrossan, Scotland, assignor to International Flare-Signal Co., a corporation of Ohio.

2,175,535: Cowling for Aircraft Engines or Radiators. Pierre Ernest Mercier, Paris, France.

2,175,584: Variable Ratio Manual Controller for Aircraft. Stephen J. Zand, Forest Hills, N. Y., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,175,609: Airplane Propeller Blade. Frank Leeb, Culver City, Cal.

2,175,627: Disengaging Means for Automatic Control Systems for Aircraft. Eduard Fischel, Berlin-Charlottenburg, and Gerald Klein, Berlin-Dahlem, Germany, assignors to Siemens Apparate und Maschinen Gesellschaft mit beschränkter Haftung, Berlin, Germany.

2,175,634: Automatic Parachute Opener. Walter Charles McQuillen, Philadelphia, Pa.

2,175,631: Gyroscopic Apparatus for Determining the Inclination of an Airplane. Paul Eduard Koster, Berlin-Siemensstadt, Germany, assignor to Siemens Apparate und Maschinen Gesellschaft mit beschränkter Haftung, Berlin, Germany.

2,175,799: Electrohydraulic Telemotor. Frederick S. Hodgman, Glen Rock, N. J., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,175,800: Electrohydraulic Steering Gear. Frederick S. Hodgman, Glen Rock, N. J., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,175,825: Engine Mount. Kenneth A. Browne, Westwood, N. J., and Edward S. Taylor, Cambridge, Mass., assignors, by mesne assignments, to Wright Aeronautical Corp., Paterson, N. J.

2,175,876: One-Way Clutch. Roland Chilton, Ridgewood, N. J., assignor, by mesne assignments, to Wright Aeronautical Corp., Paterson, N. J.

2,175,931: Gun-Pointing Accessory. Clem G. Trimbach, Eggertsville, N. Y., assignor to Curtiss-Wright Corp.

2,175,999: Flexible Engine Mount. Edward S. Taylor, Cambridge, Mass., assignor, by mesne assignments, to Wright Aeronautical Corp., Paterson, N. J.

2,176,461: Aircraft Landing Gear. Victor A. Larsen, South Farmingdale, N. Y., assignor to Spencer-Larsen Aircraft Corp., Farmingdale.

2,176,904: Aircraft. John W. Jackson, Glen Allen, Va., assignor of one-half to Emory D. Erwin, Richmond, Va.

2,176,907: Gun Mounting for Aircraft. Andrew Ward Kinsley, Dayton, O.

2,176,922: Variable Speed Correction for Automatic Pilots. Francis G. Nesbitt, Dayton, O.

2,177,044: Fluid Pressure System. Romeo M. Nardone, East Orange, N. J., assignor to Eclipse Aviation Corp., East Orange.

2,177,094: Gyro Sextant. Leslie F. Carter, Leonia, N. J., and Mortimer F. Bates, Brooklyn, N. Y., assignors to Sperry Gyroscope Co. Inc., Brooklyn.

2,177,199: Powerplant. Raymond P. Lansing, Montclair, N. J., assignor to Eclipse Aviation Corp., East Orange, N. J.

2,177,218: Magnetic Compass. Maximilian Klein and Bernhard Willach, Sellersville, Pa., assignors to United States Gauge Co., Sellersville.

2,177,242: Aircraft Automatic Pilot. Bert G. Carlson, Freeport, N. Y., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,177,244: Anemometer with Altitude Correction. Ugo Ciamberlini, Milan, Italy.

2,177,315: Air Propeller with Automatically Variable Pitch. Ugo De Carla, Milan, Italy.

2,177,499: Aircraft. George S. Schaler, South Bend, Ind., assignor to Bendix Products Corp., South Bend.

2,177,535: Variable Pitch Propeller. Haviland H. Platt, New York, N. Y.

2,177,673: Bomb Displacing Gear. Garret L. Schuyler and Arthur C. Miles, U. S. Navy, and George A. Chadwick, Washington Grove, Md.

2,178,017: Friction Clutch. Alfred Hubert Roy Fedden and James Lansdowne Norton, Bristol, England, assignors to the Bristol Aeroplane Co. Ltd., Bristol.

2,178,027: Altimeter for Aircraft. George Maurice Wright, Bicknacre, Chelmsford, and Archibald McLeellan, Bayswater, London, England, assignors to Marconi's Wireless Telegraph Co. Ltd., London.

2,178,089: System of Remote Control. Joseph B. Walker, Hollywood, Cal., assignor of one-third to Frank Capra and one-third to Sheldon K. Johnson, both of Los Angeles County, Cal.

2,178,098: Two-Stage Starter Control. Manuel H. Elkin, Elmira Heights, N. Y., assignor to Bendix Aviation Corp., South Bend, Ind.

2,178,237: Aircraft Landing System. Ernest G. Linder, Philadelphia, Pa., assignor to Radio Corporation of America.

2,178,291: Gun Mount for Aircraft. Gustav Steuerlein, Dessau, Germany, assignor to Junkers Flugzeug-und Motorenwerke Aktiengesellschaft, Dessau.

2,178,297: Internal Combustion Engine. Louis Birkiet, Versoix, near Geneva, Switzerland.

2,176,185: Airplane. Harry T. Nelson, Dallas, Tex.

2,176,197: Earth Inductor Compass. George P. Bentley, Wollaston, Mass., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,176,461: Aircraft Landing Gear. Victor A. Larsen, South Farmingdale, N. Y., assignor to Spencer-Larsen Aircraft Corp., Farmingdale.

Vega Manager



H. E. Ryker, above, recently was appointed general manager of Vega Airplane Co., Burbank, Cal., succeeding Vernon Dorrrell, newly elected vice-president of Mid-Continent Airlines.

2,176,476: Airplane. Charles Twining, Garden City, N. Y.

2,176,542: Airplane. Henry Harrison Nicholson, Boulder, Colo.

2,176,556: Controllable Pitch Propeller. Glen T. Lampton and Paul F. Hackethal, Williamsport, Pa., assignors to Aviation Manufacturing Corp., Williamsport.

2,176,708: Map Holding Device for Airplanes. Marie Josephine Douglas, Palm Beach, Fla.

2,176,809: Jet Controlled Airfoil. Edward F. Zap, West Chester, Pa.

2,176,817: Aircraft Construction. Joel M. Jacobson and Michael Water, Baltimore, Md., assignors to Glenn L. Martin Co., Baltimore.

2,176,499: Method of Blind Landing of Aircraft. Harry Diamond, Washington, D. C., assignor to the government of the United States as represented by the secretary of commerce.

2,176,506: Parachute Rip Cord Receding Cone. George A. Jahant, U. S. Marine Corps.

2,176,570: Method and Means of Aerial Navigation. John A. Zublin, Los Angeles, Cal.

2,176,663: Recorder. Edwin A. Link Jr., Binghamton, N. Y.

2,176,877: Tail Wheel Assembly. Harvey N. Martin, Long Beach, Cal.

2,179,962: Electric Generating System for Aircraft and Domestic Service. William B. Scott, Cassoday, Kan.

2,180,036: Airship and Process for Sustaining the Same. Alime Joseph Dardel, Moncey, Doubs, France.

2,180,182: Parachute Assemblage. Stanley Switlik, Trenton, N. J.

2,180,250: Hull of Flying or Motor Boats. Arthur Oliver Mattocks, Rochester, England, assignor to Short Brothers Ltd., Rochester.

2,180,287: Rotation Control Mechanism. Raymond T. Zwack, East Orange, N. J., assignor to Eclipse Aviation Corp., East Orange.

2,181,250: Speed Control for Gyro Rotors. Vladimir A. Reichel, Bellerose, N. Y., assignor to Bendix Aviation Corp., South Bend, Ind.

2,181,258: Operating Device for Control Surfaces for Airplanes. Robert W. Ayer, Wayne, Mich., assignor, by mesne assignments, to Aviation Manufacturing Corp., Chicago, Ill.

2,181,269: Manufacture of Propeller Blades. Edward Payette Gehret, Jersey Shore, Pa., assignor to Aviation Manufacturing Corp., Williamsport, Pa.

2,181,326: Glider. Alvin G. Griffin, Pittsburgh, Pa.

2,181,333: Engine Starting Mechanism. Raymond P. Lansing, Montclair, N. J., assignor to Eclipse Aviation Corp., East Orange, N. J.

2,181,444: Flight Indicator. David F. Zook, Evanston, Ill.

2,181,477: Aerial Device. Carl B. Chupp, Abington, Pa.

2,181,501: Airplane Control Device. Rex B. Beisel, West Hartford, Conn., assignor to United Aircraft Corp., East Hartford, Conn.

2,181,574: All-Wing Airplane With Separable Flotation Section. Vincent J. Burnelli, Keyport, N. J., assignor to Burnelli Aircraft Ltd., Keyport.

Spring Mfr. Buys Plant

Van Winkle & Miller Co., Brooklyn, N. Y., has purchased for \$37,500 a plant of 66,000 sq. ft. in Paterson, N. J., for the manufacture of precision springs. The company does considerable work for Wright Aeronautical Corp. at Paterson. Employment stands at 150 at present, but expansion is anticipated with location in Paterson.

2,181,656: Braking Method and Device for Airplane Launching Systems. Reuben H. Fleet, William B. Wheatley and Isaac M. Lutton, San Diego, Cal.

2,181,813: Aircraft Instrument. Karolus E. Kunze, Jamaica, N. Y., and Theodore L. Soo-Hoo, Quincy, Mass.

2,181,875: Spray Strip for Seaplanes. Walter S. Diehl, U. S. Navy.

2,181,985: Aerial Propeller with Variable Pitch. Charles Raymond Waseiga, Rueil, France.

2,182,054: Air Cooled Engine on Aircraft. Paul Alme Richard, Clichy, France.

2,182,285: Adjusting Mechanism for Propeller Blades. Ugo de Carla, Milan, Italy.

2,182,333: Tail Supporting Wheel or its Equivalent for Aircraft. Leonard Eugene Cowey, Kew Gardens, England.

2,182,366: Resilient Wing for Airplanes. John Dumans Van Vleet, Grand Haven, Mich.

2,182,530: Automatic Control for Deicing Mechanism. Howard Baer, Jersey City, N. J., assignor to Eclipse Aviation Corp., East Orange, N. J.

2,182,547: Automatic Control for Deicing Mechanism. Lawrence F. Tunney, Baldwin, N. Y., assignor to Eclipse Aviation Corp., East Orange, N. J.

2,182,648: Airplane. Guillermo Solomon, Santiago, Dominican Republic.

2,182,706: Airplane Safety Device. Francis R. Shanley, Washington, D. C., assignor to the government of the U. S., as represented by the Secretary of the Navy.

2,182,722: Gun Turret for Aircraft. Pierre Henry Edmond de Gavardie, Paris, France.

2,182,727: Telephone Set for Communication in Airplanes. Gerald Klein, Berlin-Lichterfelde, Germany, assignor to Siemens Apparate und Maschinen Gesellschaft mit beschränkter Haftung, Berlin.

2,182,799: Design for an Airplane. James S. McDonnell Jr., Baltimore, Md., assignor to Glenn L. Martin Co., Baltimore. Term of patent, 14 yrs.

2,177,767: Design for a Goggle. Joseph Brunetti, Carlstadt, N. J. Term of patent, 7 yrs.

2,178,555: Safety Mechanism for Improving Dirigibility of Ships, Submarines and Aircraft. Henry C. Briggs, Brooklyn, N. Y.

2,178,623: Stabilizing Means for Landing Field Charts. Leslie F. Carter, Leonia, N. J., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,178,637: Means and Method of Instrument Indication in Airplanes. Edwin A. Link Jr., Binghamton, N. Y.

2,178,725: Airplane Propulsion. Frank Lawrence, Maury, O.

2,178,799: Temperature Compensated Indicating Instrument. Hans Leon Bloomfield, N. J., assignor to Bendix Aviation Corp., South Bend, Ind.

2,178,953: Hydraulic Plunger Seal. Roland Chilton, Ridgewood, N. J., assignor to Wright Aeronautical Corp., Paterson, N. J.

2,178,960: Cowling. Rudolph F. Gagg, Fair Lawn, N. J., assignor to Wright Aeronautical Corp., Paterson, N. J.

2,178,993: Piston Ring Arrangement. Henry C. Hill, Montclair, N. J., assignor to Wright Aeronautical Corp., Paterson, N. J.

2,178,998: Engine Cowling. Carl William Scott, Ferguson, Mo., assignor to Curtiss-Wright Corp.

2,180,462: Aircraft Structure. Alexander P. de Seversky, Northport, N. Y., assignor to Seversky Aircraft Corp. (now Republic Aviation Corp.) Farmingdale, N. Y.

2,180,526: Retractable Landing Gear. George E. Johnsen, Phoenix, Ariz.

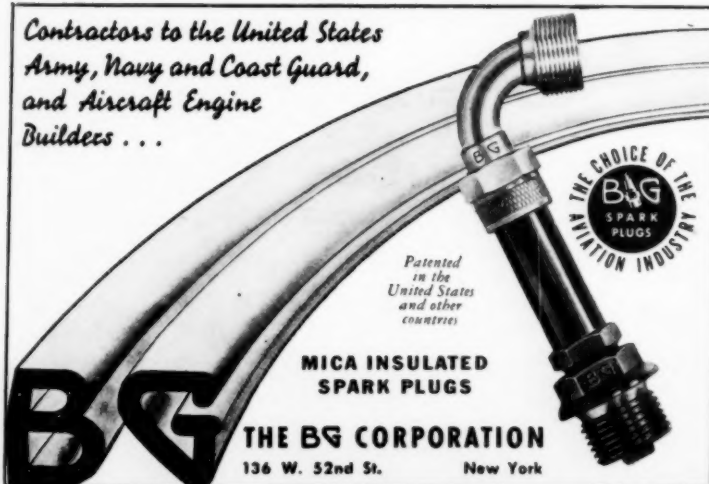
2,180,667: Parachute Signal. Josef B. Decker, Elkton, Md., assignor to Triumph Explosives Inc.

2,180,843: Noise Reducing Means for Cabin Aircraft. Stephen J. Zand, Forest Hills, N. Y., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,180,922: Helicopter Device. George de Bothezat, New York, N. Y., assignor to Helicopter Corporation of America, Long Island City, N. Y.

(Persons desiring complete copies of patents listed should write to Commissioner of Patents, Dept. of Commerce, Washington, D. C. Price is 10¢ per patent.)

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders . . .



THE BG CORPORATION
136 W. 52nd St. New York

GOVERNMENT CONTRACTS

(Awards of \$10,000 and Over)

Release Date Shown

ENGINES, PARTS, ACCESSORIES

Scintilla Magneto Div., Bendix Aviation Corp., Sydney, N. Y., 12/22, magneto, \$54,439 (Philadelphia Navy Yard).

Variety Aircraft Corp., Dayton, O., 12/22, propeller blades, \$42,600 (Air Corps).

Bendix Products Div., Bendix Aviation Corp., South Bend, Ind., 12/22, landing gear, \$17,757.72 (Philadelphia Navy Yard).

Bendix Products Div., Bendix Aviation Corp., South Bend, Ind., 12/22, carburetor, \$25,537.50 (Philadelphia Navy Yard).

Wright Aeronautical Corp., Paterson, N. J., 12/22, crankshaft, \$36,514.80 (Philadelphia Navy Yard).

Cleveland Pneumatic Tool Co., Cleveland, O., 12/22, landing gear struts, \$83,232 (Philadelphia Navy Yard).

Wright Aeronautical Corp., Paterson, N. J., 12/22, engine parts, \$10,181.50 (Philadelphia Navy Yard).

Steel Products Engineering Co., Springfield, O., 12/22, propeller hub assemblies, \$30,690 (Air Corps).

Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 12/22, octants, \$27,075 (Navy).

Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., 12/26, carriage equipment & spare parts for gun mounts, \$53,607 (Air Corps).

Hamilton Standard Propellers Div., United Aircraft Corp., East Hartford, Conn., 12/26, propeller assemblies & control assemblies, \$1,148,009.20 (Air Corps).

Douglas Aircraft Co. Inc., Santa Monica, Cal., 12/29, wing stabilizers, \$126,138 (Navy).

Sperry Gyroscope Co. Inc., Brooklyn, N. Y., 12/29, automatic gyro pilots, \$20,135 (Navy).

Vought-Sikorsky Aircraft Div., United Aircraft Corp., Stratford, Conn., 12/29, airplane parts, \$24,909.92 (Naval Air Station).

Pioneer Instrument Div. of Bendix Aviation Corp., Bendix, N. J., 1/2, climb indicators, \$29,767.50 (Navy).

Pump Engineering Service Corp., Cleveland, O., 1/3, fuel & vacuum pump assemblies, \$25,830.74 (Air Corps).

Scintilla Magneto Div., Bendix Aviation Corp., Sydney, N. Y., 1/3, magneto assemblies, \$39,135.25 (Air Corps).

Steel Products Engineering Co., Springfield, O., 1/4, single cylinder test engine & cylinder adapter, \$19,750 (Air Corps).

Variety Aircraft Corp., Dayton, O., 1/4, pelorus assemblies, \$15,566.40 (Air Corps).

Bell Aircraft Corp., Buffalo, N. Y., 1/5, adapter assemblies, \$94,205.87 (Air Corps).

Wright Aeronautical Corp., Paterson, N. J., 1/6, services & materials to convert Navy engines, \$12,451.75 (Navy).

Kollsman Instrument Co. Inc., Elmhurst, N. Y., 1/9, generators & tachometers, \$38,972.50 (Navy).

MISCELLANEOUS

Bausch & Lomb Optical Co., Rochester, N. Y., 12/22, aircraft binoculars, \$16,056 (Navy).

Standard Oil Co. of California, San Francisco, Cal., 12/22, aircraft engine fuel, \$11,000 (Air Corps).

Aluminum Co. of America, Washington, D. C., 12/22, aluminum, \$332,942 (Philadelphia Navy Yard).

Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., 12/26, transmission systems & data, \$375,210 (Air Corps).

Humble Oil & Refining Co., Houston, Tex., 12/29, aircraft engine fuel, \$549,915.20 (Air Corps).

Shell Oil Co. Inc., San Francisco, Cal., 12/29, aircraft engine fuel, \$436,363.10 (Air Corps).

Shell Oil Co. Inc., New York, N. Y., 12/29, aircraft engine fuel, \$274,414.28 (Air Corps).

Standard Oil Co. of California, San Francisco, Cal., 12/29, aircraft engine fuel, \$68,322.50 (Air Corps).

Shell Oil Co. Inc., St. Louis, Mo., 12/29, aircraft engine fuel, \$567,157.70 (Air Corps).

Standard Oil Co. of New Jersey, New York, N. Y., 12/29, aircraft engine fuel, \$301,120 (Air Corps).

Texas Co., New York, N. Y., 12/29, aircraft engine fuel, \$26,880 (Air Corps).

Standard Oil Co. Inc. in Kentucky, Louisville, Ky., 12/29, aircraft engine fuel, \$115,702 (Air Corps).

Standard Oil Co. of Ohio, Cleveland, O., 12/29, aircraft engine fuel, \$21,840 (Air Corps).

Phillips Petroleum Co., Bartlesville, Okla., 12/29, aircraft engine fuel, \$79,606.98 (Air Corps).

Crescent Tool Co., James, N. Y., 12/29, pliers, combination, curved & flat nose, \$12,072.12 (Air Corps).

Jefferson Electric Co., Bellwood, Ill., 1/3, series multiple transformers, \$23,991 (Air Corps).

C. Y. Thomson Co., Greenwood, S. C., 1/3, bulkhead, ramp, hangar foundation, magazines, etc., \$146,817 (Naval Air Station).

Hall Electric Co., Muskegon, Mich., 1/3, emergency generator set, switchboard, electrical distribution systems & accessories, \$62,577 (Naval Air Station).

Crouse-Hinds Co., Syracuse, N. Y., 1/4, portable floodlight lamp assemblies, \$18,941 (Air Corps).

Sigmund Eisner Co., Red Bank, N. J., 1/4, summer flying suits, \$33,391.31 (Air Corps).

E. A. Kinsey Co., Cincinnati, O., 1/4, precision lathe & automatic screw machine, \$11,917.57 (Air Corps).

C. H. Gosiger Machinery Co., Dayton, O., 1/4, precision lathe & automatic screw machine, \$27,574.50 (Air Corps).

Shell Oil Co. Inc., New York, N. Y., 1/4, aircraft engine fuel, \$22,916.88 (Air Corps).

Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., 1/4, electric motor, tow target windlass, \$27,496 (Air Corps).

Gisholt Machine Co., Madison, Wis., 1/5, experimental balancing machine, \$14,150 (Air Corps).

Elastic Stop Nut Corp., Elizabeth, N. J., 1/5, self-locking & plate nuts, \$11,458.09 (Air Corps).

George Worthington Co., Cleveland, O., 1/5, rope, \$12,526.83 (Air Corps).

A. C. Lawrence Leather Co., Peabody, Mass., 1/5, sheep shearing, \$84,000 (Air Corps).

J. Laskin & Sons Corp., Milwaukee, Wis., 1/5, sheep shearing, \$84,000 (Air Corps).

Aluminum Co. of America, Pittsburgh, Pa., 1/5, aluminum alloy, \$70,129.99 (Air Corps).

Fairchild Aerial Camera Corp., Jamaica, L. I., N. Y., 1/5, cone assemblies, \$32,780 (Air Corps).

Lewis Bear Co. Inc., Pensacola, Fla., 1/5, ship's store articles, \$22,021.03 (Naval Air Station).

TWA and MCA Promotion

Two air transport companies—Mid-Continental Airlines and Transcontinental and Western Air Inc.—are distributing promotional booklets in an attempt to explain some of the "mysteries" of air travel to possible passengers. Mid-Continent's eight-

page brochure, printed in two colors, emphasizes the 20,000,000 miles of flying experience behind MCA and explains that "all guess work in flying is eliminated." TWA's 16-page booklet, also in two colors, explains its "alternate route" flying through the use of many illustrations and maps showing "sunshine regions."

NEW YORK STOCK EXCHANGE

Week Ended Dec. 30

Week Ended Jan. 6

	High	Low	Net Change	Sales	High	Low	Net Change	Sales
American Airlines	47	41 1/4	+4 1/4	15,400	46 1/4	43 1/2	-1 1/2	9,500
Aviation Corp.	7 1/8	6 3/4	.....	13,500	7 1/8	6 1/2	-1 1/2	19,000
Bendix Aviation	31 3/8	29 3/4	+1 1/2	14,450	32 1/8	29 3/4	-1 1/2	16,300
Boeing Airplane	22 1/2	21 1/4	-1 1/4	11,000	22 1/2	22 1/4	+2 1/4	21,500
Consolidated Aircraft	29 3/8	28 1/2	+1 1/2	5,900	29 3/8	28 1/2	-1 1/2	4,600
Continental Motors	4	3 3/4	.....	10,000	4	3 3/4	.....	30,600
Curtiss-Wright	10 3/8	10 1/4	.....	46,600	10 3/8	10 1/4	-1 1/4	53,500
Curtiss-Wright A	30	28 1/2	+1 1/2	11,000	30 1/4	29 1/2	-1 1/4	7,100
Douglas Aircraft	82 1/8	80 1/2	+1 1/2	9,700	83 1/8	80	-2 1/2	5,800
Eastern Air Lines	31 1/8	29 1/4	+1 1/2	16,400	31 1/8	29 1/4	-1 1/2	8,900
Ex-Cell-O	23 3/4	23 1/4	.....	1,600	23 3/4	22 3/4	-1 1/2	2,000
Lockheed Aircraft	32 3/4	30	+1 1/2	35,000	32 3/4	29 1/2	-1 1/2	18,700
Glenn L. Martin	40 1/2	39 1/4	+1 1/2	15,000	41 1/2	39	-1 1/2	10,500
Natl. Aviation Corp.	13 1/2	12 1/4	+1 1/2	1,900	14	13	-1 1/2	2,300
N. American Aviation	26 1/2	25 1/2	+1 1/2	25,100	26 1/2	25 1/2	-1 1/2	19,200
Pan American Airways	19 1/8	18	+1 1/2	14,600	20 3/8	18 1/2	-1 1/2	17,000
Sperry Corp.	45 3/4	45	-1 1/4	12,300	46 1/4	43 1/2	-1 1/2	7,300
Thompson Products	30 1/2	29 3/8	-1 1/4	1,900	30 3/8	28 3/8	-1 1/2	1,900
TWA	12 1/2	11 3/4	.....	9,100	14 1/2	12 3/4	+1 1/2	12,100
United Aircraft	47 1/2	46 3/8	+1 1/2	22,900	47 1/2	46 1/8	-1 1/2	11,600
United Air Lines	16 1/2	14 3/4	+1 1/2	46,300	16 1/2	15 1/2	-1 1/2	28,900
Wright Aeronautical	11 1/4	11 1/8	+1 1/4	40	11 1/4	11 1/8	-1 1/4	100

NEW YORK CURB EXCHANGE

Week Ended Dec. 30

Week Ended Jan. 6

	High	Low	Net Change	Sales	High	Low	Net Change	Sales
Aero Supply B	5 1/4	4 3/4	+1 1/4	2,000	5 1/4	5	-1 1/4	400
Air Associates	10 1/8	10 1/8	+1 1/8	700	10 3/4	10 1/2	-1 1/2	1,200
Air Investors	2 1/4	2 1/4	+1 1/4	400	2 1/4	2 1/4	+1 1/4	900
Air Investors cv pf	19 1/2	19	+1 1/2	400	20 1/2	20	+1 1/2	200
Air Investors war	3 1/2	3 1/2	-1 1/2	200	3 1/2	3 1/2	+1 1/2	200
Aviation & Transp.	3 1/2	3 1/4	-1 1/4	6,500	4	3 3/4	+1 1/4	13,800
Beech Aircraft	7 3/4	7 1/4	+1 1/4	4,700	7 3/4	7 1/4	-1 1/4	2,100
Bell Aircraft	19 3/4	17 1/2	+1 1/2	2,900	21	20	+1 1/2	1,100
Bellanca Aircraft	7 1/2	6 3/4	+1 1/2	1,100	7 1/2	7 1/4	+1 1/2	1,100
Breeze Corps	6 1/2	5 3/4	+1 1/2	1,200	6 1/2	5 1/2	.....	1,500
Brewster Aero	12 3/4	11 3/4	+1 1/2	22,900	12	10 3/4	-1 1/2	9,900
Canadian Colonial	7 1/2	6 3/4	.....	2,700	7 1/2	6 1/2	-1 1/2	3,600
Fairchild Aviation	11	10 1/2	-1 1/2	1,600	12 1/2	11	+1 1/2	4,600
Grumman Aircraft Eng.	16	15 1/2	.....	2,100	17	16	.....	2,100
Irving Air Chute	17 3/8	17 1/4	+1 1/4	200	17 1/2	16 1/2	+1 1/2	500
Penn-Central Airlines	11 3/8	10 3/8	+1 1/4	9,600	12 1/2	11 3/4	+1 1/2	10,200
Republic Aviation	6 1/2	5 3/4	+1 1/2	12,800	6 1/2	6	.....	7,600
Roosevelt Field	1 3/4	1 1/4	-1 1/4	200	1 3/4	1 3/4	.....	100
Waco Aircraft	5	4 1/2	.....	.....	5	4 3/4	.....	200
Western Air Express	5	4 1/2	+1 1/4	1,800	5 1/4	4 3/4	-1 1/2	1,900

AVIATION STOCK COMMENTS

Comments by Philip P. Friedlander

Through the pages of stock market history, there has never been a more challenging case where an industry has advanced so rapidly, had such a large amount of backlog on its books, or had profits accruing at such a fantastic rate, and yet saw the stocks of these same manufacturing companies failing to attract a large public following, and consequently failing to demonstrate market-wise, as has happened with aviation securities.

Wall Street sources estimate backlog for these manufacturing companies to be close to \$648,000,000 compared to \$156,000,000 a year ago, and profits are computed to be doubled over 1938. The failure of these equities to assert a leadership has served to raise doubt in the minds of many of what lies ahead.

Is it true, as an advisory service contends, that if peace comes, the industry will be badly disorganized, with a long dreary period of adjustment lying ahead? One glance at the terrific backlog figure seems to indicate that peace or war aviation companies will have work to do for the next several years. The very nature of the industry, with changing models and improvements, fosters and increases business. Doubt can be expressed that peace will hurt the industry to any considerable extent.

What then is happening in the market? Aviation stocks did have a flare

up when the averages hit 46 during November, and since then the fluctuation has been rather wide. During December a low of 38.34 was established. The seven and three-quarter point swing represents, no doubt, some adjustment on the move. It is recalled that during Apr. 1939, the averages went as low as 29.03, and the year's move constituted a 17-point advance. The correction was only about 50%.

Studying the chart formation, it is interesting to note that quite a big base has been built up. The last rally carried the averages to 44.12—true under the high of 46—but there is a foundation for a move to 51, the indicated objective given several months ago. At this writing the set-back from 44.12 has been less than one point. As long as the averages hold the major support at 39-38, there is apparently justification in feeling that the bigger move will come, and that fresh weakness should be used for the accumulation of these equities.

Martin Trading at Cleveland

The Securities & Exchange Commission has granted the application of Cleveland Stock Exchange to extend unlisted trading privileges to Glenn L. Martin Co. \$1-par common stock.

* AIRCRAFT HULL • AIRCRAFT LIABILITY • PERSONAL ACCIDENT *

AVIATION INSURANCE

adaptable to every form of risk
incurred by owners or operators
of aircraft, hangars or airports

EMPLOYER'S LIABILITY • HANGAR KEEPERS LIABILITY

ASSOCIATED AVIATION UNDERWRITERS

90 JOHN STREET, NEW YORK 215 WEST 7th STREET, LOS ANGELES

* COMPENSATION • AIRPORT LIABILITY • AIRPORT PROPERTY DAMAGE *

Fortnightly Financial Review

Lockheed Reveals Big-Ship Orders to SEC; Beech, Solar, Hayes Files

Aviation stock registrations at the Securities & Exchange Commission in the two-week period ended Jan. 10 represented aggregate net proceeds of more than \$9,000,000 to the four manufacturers announcing offerings.

Lockheed Aircraft Corp. paved the way for extensive development of new models with greater emphasis planned on research. It is offering 225,000 shares which will bring about \$7,000,000 if sold at \$33 a unit.

The company reveals in its statement that it has received two advance orders for slightly varying versions of a plane "of large size and higher performance than any heretofore produced by the company," totaling \$3,645,000 and \$1,700,000, respectively. Delivery on the larger order is to start in October, 1940, and be completed during April 1941. Payment in full for each plane is to be made by the purchaser at delivery and acceptance, the SEC is informed.

"The company has agreed to certain restrictions of its right to deliver airplanes of this model to others for a period of time, but in accordance with the terms of the agreement an order of a sales value of \$1,700,000 has recently been accepted for airplanes . . . substantially similar . . . manufacturer reveals. "The company has undertaken to develop and construct . . . the model to specifications . . . Industry circles say this is Lockheed's new 4-engined transport, one version of which is to be military, the other commercial.

Beech Aircraft Corp., Solar Aircraft Co., and Hayes Manufacturing Corp. statements also were filed. Summaries follow:

Lockheed Aircraft Corp.

Registration statement covers 225,000 \$1-par common shares, to be offered at not more than \$33, with proceeds of not more than \$7,425,000, which would be expended essentially as follows:

\$1,750,000 for developing new models; \$600,000 for tools and machinery; \$225,000 for 2 assembly hangars; \$200,000 for a research laboratory; and remainder for working capital. The underwriting group is headed by Blyth & Co., Inc., G. M.-P. Murphy & Co., and Smith, Barney & Co., taking 35,000, 35,000, and 23,000 shares respectively. Development expenses on books Nov. 30 totaled \$1,398,543, exclusive of \$323,531 carried as work-in-process for U. S. British and Australian contracts, and an expenditure of at least \$2,000,000 additional on any particular project will be necessary before any craft can complete final tests.

Purchase of Continental Aeronautic Corp., Nov. 28 involved \$625,000. On Dec. 28 sale of Continental property was made to Lockheed's subsidiary, Vega Airplane Co., payable by transfer to Lockheed of the old Vega property adjoining parent's plant, and other considerations.

New subsidiary, Lockheed Aircraft Corp. of Canada, Ltd., has no substantial assets and is inactive. Three shares have been issued to nominees of parent. Lockheed now owns 231,667 shares of Vega stock, which is 50.36% of the amount which will be outstanding if all shares now subscribed for and unissued are issued. Balance sheet for Nov. 30 shows assets of \$14,313,598, with cash of \$976,981, total current assets of \$9,236,318. Current liabilities, \$5,127,581. Of an authorized 1,000,000 \$1-par shares, 775,000 were outstanding. Surplus: paid-in \$4,573,341; capital \$24,774; earned \$3,352,180.

Beech Aircraft Corp.

Total of 35,651 \$1-par common shares of authorized but unissued stock, underwritten by Tift Bros., and Neelands & Platte, of Springfield, Mass., and New York, respectively, are covered by registration. Net proceeds, estimated at \$279,658, will be expended about as

follows: \$100,000 for note payable to Chase National Bank; \$25,000 for payment of 5% mortgage note to Curtiss-Wright Airplane Co. (on purchase of present plant site at Wichita, Kan.) maturing Feb. 12, 1940; balance to working capital.

Indication that company expects military orders shortly is seen in underwriting provision that if the European war ceases before registration is effective, underwriters have right to terminate the agreement. Emphasis is placed on necessity of having available working capital for production of a "substantial number" of aircraft.

Company will sell underwriters within 3 days after effective date 5,000 shares at \$8, and will grant options to purchase within 40 days after effective date the whole or any part of the remaining 30,651 shares at same price. Price to public will be either \$9 or market.

Solar Aircraft Co.

Firm registers 50,000 Series A, preferred no par shares, and 100,000 \$1-par common which latter are reserved for conversion of preferred. Underwriter, Eldred, Potter & Co., Los Angeles, will form selling group, offering preferred units to public at initial price of \$8, of which Solar will receive \$6.40. Total of 3,000 shares will be reserved for Solar officials and employees for 5 days, at \$6.40. No firm commitment has been made.

Proceeds are estimated at \$320,000, to be used approximately as follows: to reduce trade accounts payable \$96,267; payment of notes payable \$49,740; reduction of other liabilities \$6,293; new laboratory and factory equipment \$45,308; increased inventories of raw materials \$30,000; for working capital \$18,102.

Firm, which is in San Diego, Calif., claims to be largest manufacturer of exhaust manifold for aircraft engines in U. S. About 90% of present business consists of this work, for all leading aircraft manufacturers. Backlog of Dec. 18 was \$638,790 in confirmed orders, plus additional orders for a total of \$1,030,478. Scheduled production for period through Apr. 30 is about \$25,000 a week. Payroll is 416. Gross sales for 28 weeks from May 1 to Nov. 11, 1939, were \$468,916, and net profit was \$14,551.

Balance sheet for Nov. 11 shows assets of \$509,581; current assets of \$267,434. Current liabilities were \$168,168. No preferred stock was outstanding, but 230,000 \$1-par shares were issued. Surplus: paid-in \$68,190; capital, none; earned \$34,202.

Hayes Manufacturing Corp.

Company, which changed name on Dec. 26, 1939, from Hayes Body Corp., registers 300,000 \$2-par shares, and announces plans for manufacture and sale of aircraft parts, sub-assemblies, accessories and allied products to aircraft manufacturers. John W. Young, formerly a vice president of Breeze Corp., Inc., joined Hayes Oct. 1 as president, and William B. Robertson, formerly president of Robertson Aircraft Corp., St. Louis, recently was elected vice president. Price of 275,000

All-Metal Ryan STM



Incorporating features of previous Ryan models and the Ryan S-T sport trainer, the Ryan STM shown here recently was announced by the company in San Diego, Cal. Developed as a training plane, the STM is powered by a Menasco C48 150-hp. supercharged engine which develops a top speed of 160 mph. This model is similar to the military version of the commercial S-T, designated the XPT-16 by the Air Corps.

Specification and performance figures follow: Wing span, 29 ft. 11 in.; length overall, 21 ft. 5 in.; height overall, 6 ft. 11 in.; wing area, 124 sq. ft.; empty weight, 1,058 lb.; useful load, 542 lb.; gross weight, 1,600 lb.; wing loading, 12.9 lb. 1 sq. ft.; power loading, 12.8 lb./hp.; cruising speed at 3,000 ft., 135 mph.; landing speed with flaps, 42 mph.; climb at sea level, 1,400 ft./min.; service ceiling, 21,000 ft.

shares to public will be announced by amendment, but will approximate \$5.50.

Emphasis will be placed on construction with magnesium alloys for aviation products. Company also builds automobile bodies, motor car trailers, and tools, dies, jigs and fixtures for their manufacture. It is also one of two sources of the Navy's supply of after body sections for torpedoes. A contract is pending with Chrysler for 1,000 bodies, and work in progress includes 200 bodies for Willits-Overland station wagons. Employment in 9 months through Sept. 30 averaged 443 at company's two plants at Grand Rapids, Mich.

In year ended Sept. 30, 1939, net loss was \$292,835, against loss of \$335,257 preceding year.

Aeronca

Aeronautical Corporation of America informs the SEC in a current report that it will be in production at a new 37,500-sq. ft. plant at Middletown, O., about Mar. 1, with a capacity of 150 planes a month in the near future, and increasing average profit per plane from the present \$120 figure. About \$180,000 will be spent on removal and construction, leaving about \$100,000 for working capital, provided all of company's present stock offering (AMERICAN AVIATION Fortnightly Financial Review Dec. 1) is sold. Company now is located at Lunken Airport, Cincinnati.

Claim against company has been filed on behalf of Ferd Loeb & Co., 39 Broadway, New York, for \$125,000 alleging breach by Aeronca of alleged underwriting contract in connection with a previously proposed public sale of stock. Defendant disclaims any such contract.

Of 180,000 shares authorized, 65,938 were outstanding on Dec. 4, and upon completion of financing 125,938 shares will be outstanding.

Dividends

Mid-Continent Airlines Inc., 64 on convertible preference stock, payable Jan. 15 of record Dec. 31, for 2d quarter of company's current fiscal year.

Applications for Listing

The following have filed applications with Securities & Exchange Commission for registration on securities exchanges:

New York Stock Exchange: American Airlines Inc., 50,000 shares of \$10-par, to be registered on notice of issuance; Hayes Manufacturing Corp., 300,000 shares of \$2-par common, issued; Lockheed Aircraft Corp., 225,000 shares of \$1-par capital stock, on notice of issuance; Square D Co., 130,000 shares of \$1-par common, on notice of issuance.

New York Curb Exchange: Beech Aircraft Corp., 35,651 shares of \$1-par voting common capital stock to be registered upon notice of issuance; Fairchild Engine & Airplane Corp., 892,592 shares of \$1-par common stock, issued, and 194,060 shares of \$1-par common, unissued.

Los Angeles Stock Exchange: Lockheed Aircraft Corp., 225,000 shares of \$1-par capital stock, to be registered on notice of issuance.

San Francisco Stock Exchange: Beech Aircraft Corp., and Lockheed Aircraft Corp.

FINANCIAL REPORTS

Lockheed Aircraft Corp.

Net income for 11 months of 1939 was \$2,705,582, after taxes and depreciation, or \$3.49 each on 775,000 common shares outstanding, against \$418,709 for 11 months of 1938. Sales were above \$32,000,000, indicating year-end figure surpassing \$35,000,000. Sales in corresponding 1938 period were \$9,078,675. Backlog on Nov. 30 was \$46,000,000, including repeat order for 200 British bombers at \$20,000,000. In the 6 months through June 30, net income was \$508,565.17. Robert E. Gross, president, said 1939 sales will treble those of last year which amounted to \$10,274,503. He predicted 1940 sales would be more than \$40,000,000.

Piper Aircraft Corp.

Net profit for year ended Sept. 30 was \$94,213 after depreciation, interest, taxes, but before deducting \$9,644, one third of expenses in connection with organization of firm and stock issuance, charged to earned surplus account. Balance was \$84,569, or 80c each on 90,126 \$1-par shares, after preferred dividends. Net sales: \$1,768,652. W. T. Piper, president, predicts a 1940 fiscal year production of 2,500 craft, as compared with the 1,374 in 1939 which had a sales value of \$1,647,394, including kits but less motors. In 10 1/2 months through Sept. 30, 1938, a total of 631 planes were sold for \$689,613.

Waco Aircraft Co.

In year ended Sept. 30 net profit was \$4,582 after charges and depreciation, or 3c each on 145,000 no-par capital shares, against net loss of \$34,326 in preceding year. Net sales were \$925,791, against \$747,909. Current assets Sept. 30 were \$391,130; current liabilities were \$74,985.

American Airlines Inc.

Consolidated net income of \$1,171,412 after charges, or \$3.88 each on 301,666 shares of \$10-par capital stock. Is reported for 10 months ended Oct. 31. (The November net income, before income taxes, was later reported as \$212,290, of which \$167,790 was described as net income transferred to surplus.)

Officials of Thorp Aircraft

Thorp Aircraft Corp., Oakland, Cal., plans to build 10 model T-7 planes, now in design stage, under the direction of John W. Thorp, left, president, director and designer, and Rudy Paulic, right, mechanic and builder, who will be in charge of production.

The T-7 is a low-wing, open cockpit plane with wood propeller, with a 60-, 65- or 75-hp. engine, and will sell for about \$2,500.

Promoters of the company are Thorp, William Palmer and Thomas McDougall. Thorp is chief engineer of Boeing School of Aeronautics and Paulic has been chief research mechanic for United Air Lines. McDougall is secretary and Palmer is vice-president and treasurer. (Will Dale Auerbach).



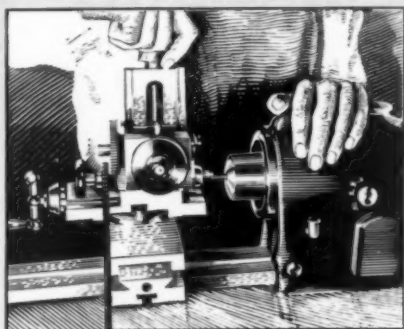
Most Assuredly!



Pioneer
precision is re-justified
thousands of times a day!



Rate-of-Climb Indicator



Pioneer Precision covers every step in the operation of this modern plant. Here skilled craftsmen work in controlled atmosphere, with equipment of the most advanced character.

Every day, every flight, of the thousands of airline, army, navy and civilian aircraft Pioneer-equipped, provides new justification for the care and expense expended to maintain Pioneer Precision. Not that precision manufacture is unique with Pioneer craftsmen—plenty of other products are also made with admirable accuracy. That isn't the point.

But the scrupulous care with which Pioneer safeguards such matters is a reflection of the serious service to which these excellent instruments are dedicated . . . and of the growing importance of instrument flying.

PIONEER INSTRUMENT
DIVISION OF BENDIX AVIATION CORPORATION
BENDIX, NEW JERSEY

NOT "HOW MANY" but "WHO"

- All the bulk circulation in the world is of little value if the men who make the decisions and do the buying don't see your advertising messages.
- AMERICAN AVIATION reaches *direct* the most select audience in the aviation industry. There is no waste, no ballast, no over-charge for non-productive readership.

American Aviation

EARLE BLDG.

WASHINGTON, D. C.